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Vol. LXI No. 6 — JUNE 1946

The American City

Issued Monthly by the
American City Magazine Corporation
470 Fourth Ave., New York 16, N. Y.

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Subscription, $3 per annum to any part of the world
Single copies, 50c
Entered as second-class matter, July 20, 1910, at the Post Office at New York, N. Y., under Act of March 3, 1879. Printed in U. S. A.

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THE MUNICIPAL INDEX AND ATLAS used in connection with the current advertisements in THE AMERICAN CITY, places local officials in the most favorable position to obtain all types of available equipment and supplies from manufacturers who desire to serve municipal government departments. THE MUNICIPAL INDEX AND ATLAS (723 pages) is published annually by THE AMERICAN CITY MAGAZINE CORPORATION, 470 Fourth Avenue, New York 16, N. Y.

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For the World's Great Music by Today's Great Artists

"THE TELEPHONE HOUR"

For some of the grandest music you ever hope to hear, we invite you to tune in "The Telephone Hour" every Monday night—over the NBC network. It's like having the world's great artists give a gala performance in your home.

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JUSSI BJOERLING	JOSEF HOFMANN	TORSTEN RALF
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NELSON EDDY	LAURITZ MELCHIOR	MAGGIE TEYTE
BENNY GOODMAN	JAMES MELTON	BLANCHE THEBOM
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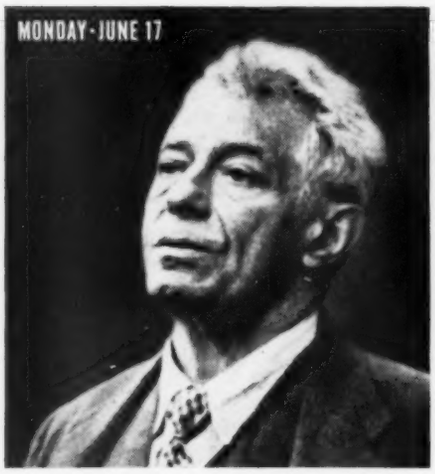
DONALD VOORHEES AND THE BELL TELEPHONE ORCHESTRA

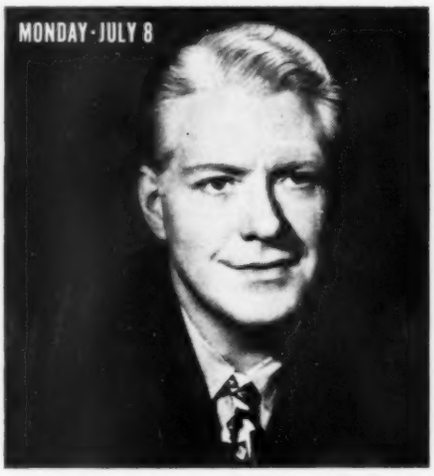
JAMES MELTON—One of America's favorite tenors. First New York appearance at Roxy Theatre. Metropolitan Opera debut, 1942.



FRITZ KREISLER—Distinguished violinist and composer. Made his first radio appearance at sixty-nine on "The Telephone Hour."

BLANCHE THEBOM—Lovely mezzo-soprano of the Metropolitan. Discovery followed her singing at a ship's concert while on vacation.

BING CROSBY—The beloved Bing of screen and radio has a distinct place in American music and in the hearts of millions of listeners.



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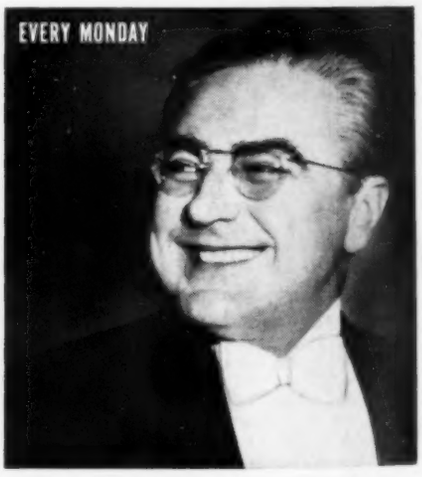

DONALD VOORHEES—Talented conductor of the Bell Telephone Orchestra, long identified with the great musical programs in radio.

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BELL TELEPHONE SYSTEM

Every Monday Night over NBC (See your local newspaper for time and station)

"To Wed the Town to the Country"

Vitality of the Ideas of Ebenezer Howard

SIGNIFICANT evidence of the vitality of ideas set forth by Ebenezer Howard nearly half a century ago has come to THE AMERICAN CITY in recent weeks from two widely separated sources. From Britain there is the article by John F. Eccles, published on page 74 of the present issue. From California, Esther Matson of Santa Monica writes to this magazine, suggesting the very thing that is happening in England and to some extent in this country, too—application to today's problems of community building and improvement of hints to be gotten from Howard's book, "Garden Cities of Tomorrow."*

Here for instance, says Miss Watson, is a paragraph that might have been written this morning:

"The town is the symbol of society—of mutual help and friendly cooperation,, of fatherhood, motherhood, brotherhood, sisterhood, of wide relations between man and man—of broad, expanding sympathies—of science, art, culture, religion.

"And the country! The country is the symbol of God's love and care for men. All that we are and all that we have come from it. Our bodies are formed of it; to it they return. We are fed by it, clothed by it, and by it we are warmed and sheltered. On its bosom we rest. Its beauty is the inspiration of art, of music, of poetry. Its forces propel all the wheels of industry. It is the source of all health, all wealth, all knowledge. But its fulness of joy and wisdom has not revealed itself to man. Nor can it ever, so long as this unholy, unnatural separation of society and nature endures. Town and country must be married, and out of this joyous union will spring a new hope, a new life, a new civilization."

Howard pointed out what our modern civic planners are stressing today—the fact that mere expansion is not a desideratum for a town (rather the contrary) and that the good community is the one that offers real and lasting instead of spurious and sporadic advantages.

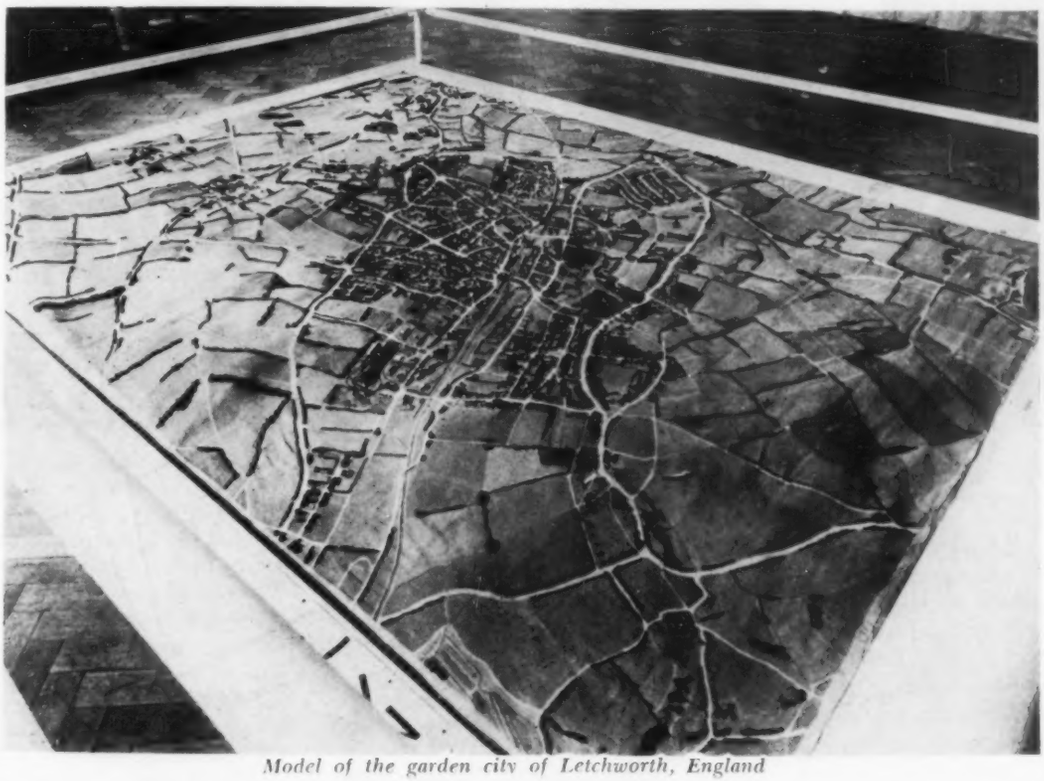
Because of our technological advances, it is easier today than it was in the past century to provide urban amenities for dwellers in even distant rural districts. In Howard's time the plane had as yet neither annihilated distance nor made the great city a target for devastation. But the railroad had done much to bring people together and even to units the great centers in a "vast network" and he foresaw that industries decentralized might be carried on quite as efficiently as when concentrated in the huge metropolitan areas. The inestimable advantage, to his mind, of such decentralization was the chance it would give to workers and their families to breathe fresh air and to get comfort and refreshment from growing things.

Besides urging this change, Howard hammered away at the idea that every man needs to work and that work must be found for every man to do. Surely, says Miss Matson, he was speaking for today and tomorrow as well as for his own day when he said:

"No such field of employment has been opened up since civilization began as would be represented by the *task which is before us of reconstructing anew the entire fabric of society*, employing as we build, all the skill and knowledge which the experience of centuries has taught us.

" . . . to build home-towns for slum cities; to plant gardens for crowded courts; to construct beautiful waterways in flooded valleys; to silence the harsh voices of anger, and to awaken the soft notes of brotherliness and good will; to place in strong hands implements of peace and construction, so that implements of war and destruction may drop uselessly down."

These are some of the things Howard believed need imperatively to be done; and first step of all, as he saw it was to create small wholesome communities that would possess both civic and rural advantages—the first step was to "wed the town to the country."

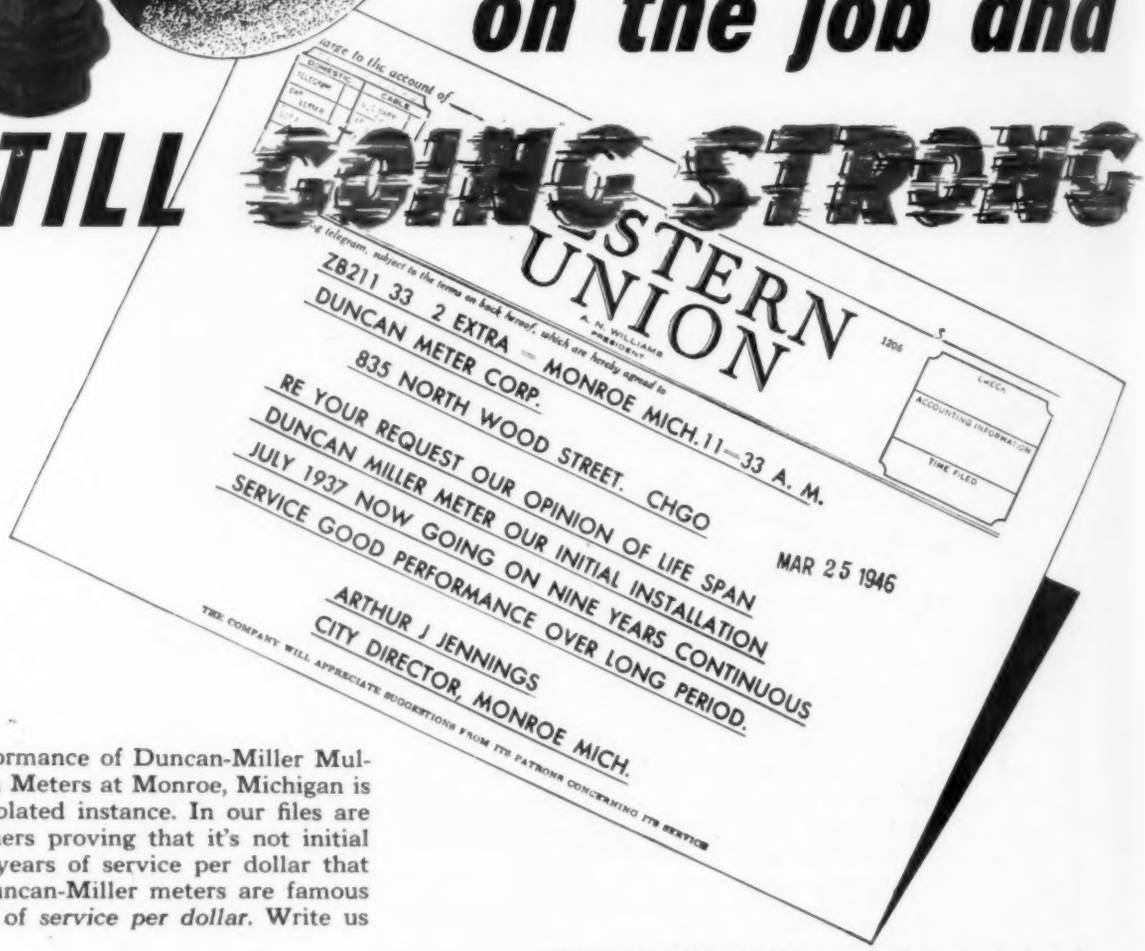


Model of the garden city of Letchworth, England

* First issued in 1898 under the title "Tomorrow: a Peaceful Path to Real Reform." A new edition, edited by F. J. Osborn, Honorary Secretary of the Town and Country Planning Association, was published in 1945 by Faber and Faber of London.

9 YEARS

on the job and STILL GOING STRONG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SERVICE GOOD PERFORMANCE OVER LONG PERIOD.
ARTHUR J JENNINGS
CITY DIRECTOR, MONROE MICH.
MAR 25 1946

The performance of Duncan-Miller Multiple Coin Meters at Monroe, Michigan is not an isolated instance. In our files are many others proving that it's not initial cost but years of service per dollar that count. Duncan-Miller meters are famous for years of *service per dollar.* Write us today.

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THERE'S NOTHING BETTER THAN BEING *FIRST*

Our Municipal Notebook

Ashville Fire Ladies Protect Community

Mrs. Florence E. Lloyd, fire captain, at driver's wheel, and her crew.

WHEN the war took the men of Ashville, N. Y., off to nearby defense plants and into the armed forces, the Chatauqua County hamlet was left with only two members of the regular Fire Department in town during the day. The situation might have been critical, but the enterprising Ashville women saw to it that the town was not long without fire protection.

In January 1943 Fire Chief Warren Wilcox opened a Fire School with thirteen of the local women, ranging in age from 22 to 58 years, attending. During the ten weeks of instruction the group worked with trucks and equipment and through actual experience learned the methods of fire fighting. At the conclusion of the course all thirteen received diplomas, but only ten have participated at fires.

Although many of the regular firemen are back now, the Fire Ladies are still active in fire fighting. Their experience has included many different kinds of fires: a bog fire, grass fires, barn and house fires, a large oil fire and an army bomber fire. In the last, caused when a four-motor bomber fully loaded for overseas crashed near Ashville, they helped lay hose so close to the blazing wreckage that they often had to run for cover from detonated machine gun bullets and exploding oxgyen and gas tanks.

Since Ashville's Peter Pirsch pumper is used exclusively by the men, the ladies drive a truck built on a Chevrolet chassis and equipped to carry a pump and 500 gallons of water. Their apparatus also includes Indian fire pumps. They plan to have a new truck as soon as circumstances permit.

Mrs. Florence E. Lloyd is captain of the Ashville Women's Fire Department, and of her crew she says, "Twelve of them are mothers and five grandmothers, but every one is right there when it comes to efficiency and knowledge of what to do and when to do it while fighting fires." The Ashville Fire Ladies are reported to be the only active Women's Fire Department in the country.

Larger Staff Sought for Crime Prevention

THE Philadelphia Police Bureau's Crime Prevention Division must be increased at least 80% if juvenile delinquency is to be controlled effectively in the city," Judge Nochem S. Winnet, chairman, told the Philadelphia Crime Prevention Association at its annual meeting held in April.

Judge Winnet termed the Crime Prevention Division undermanned with its staff of 32 men, including a captain and two sergeants, and 15 policewomen including a senior grade policewoman, and called for at least 60 men and 25 policewomen in order to have a crime prevention officer assigned to every police district.

Philadelphia's Bureau has increased its work by more than 41% in the first quarter of 1946 as compared with the same period last year. Complaints investigated by men of the division in the first three months of this year totaled 507, a 43% increase over the first three months of last year, and the division's policewomen handled 478 complaints in that period, an increase of 41%.

Crimes of violence are on the increase among young men—the youths the Crime Prevention Division must deal with, Judge Winnet noted. Although arrests of boys under 21 in Philadelphia decreased 3.8% during the first 1946 quarter (1,794 as compared with 1,866 in 1945), arrests for major offenses, which constitutes 39% of the total arrests, were up 17% (from 598 to 700).

The first quarter report of the Association's Board of Directors showed major crime increases to be criminal homicide (from 5 to 9), robbery (from 44 to 85), burglary (from 248 to 337), auto thefts (from 131 to 149), and arson (from 1 to 9). Major crime decreases were noted in rape (from 2 4to 17), aggravated assault (from 45 to 31), and larceny (from 142 to 97). Boys 15, 16, and 17, representing 23% of the total population of boys 7 to 20 years of age were responsible for 804 of the 1,982 offenses, or 40.5% of the total. The report showed that there was a decrease of 16.2% in the arrest of girls under 21 years of age in the same three months' period and a decrease of 15.9% in the arrest of girls under 18 years of age.

Dimouts Stress Need for Adequate Lighting

DIMOUT conditions imposed by the coal strike recall the restricted lighting of the war years and the accompanying threat to public safety. Seldom has the necessity of adequate street lighting been felt so keenly as in its enforced absence. Brownouts and blackouts have reemphasized the advantages of effective lighting systems.

Writing in the April issue of *Illumination Engineering*, Dr. William John Holmes, former chief of the Light Control Section, Office of the Military Governor, Honolulu, reviewed the "Blackout in Hawaii" and its effect on the safety and health of the people. Hawaii's blackout was of unparalleled severity and can hardly be compared with eastern United States brownouts, but it did reveal lighting facts of general significance.

For almost a year following Pearl Harbor all street lights were extinguished. Despite the reduction in the total number of cars on the streets, accidents and fatalities increased. In the first four months of 1943 the number of blackout traffic accidents rose almost one a night above the last four months of 1942.

The blackout went farther than the streets and affected the private lives of the citizens, prompting one doctor to say, "I feel that many of the ill effects on the health and morale of the people since the 7th of December (1941) are due to the blackout." In the beginning, the total blackout eliminated all artificial lighting, but as the war continued, the need for relief measures became urgent and relaxations were gradual until the restrictions were finally rescinded in July 1944.

Hawii's experience, like that of many American cities, has shown that effective lighting is a must for the welfare of the community. From the standpoint of accident reduction alone, adequate street lighting is a profitable investment. Dimout darkness with its increased hazards is a strong case in favor of proper street lighting of communities to protect the safety and health of their inhabitants.

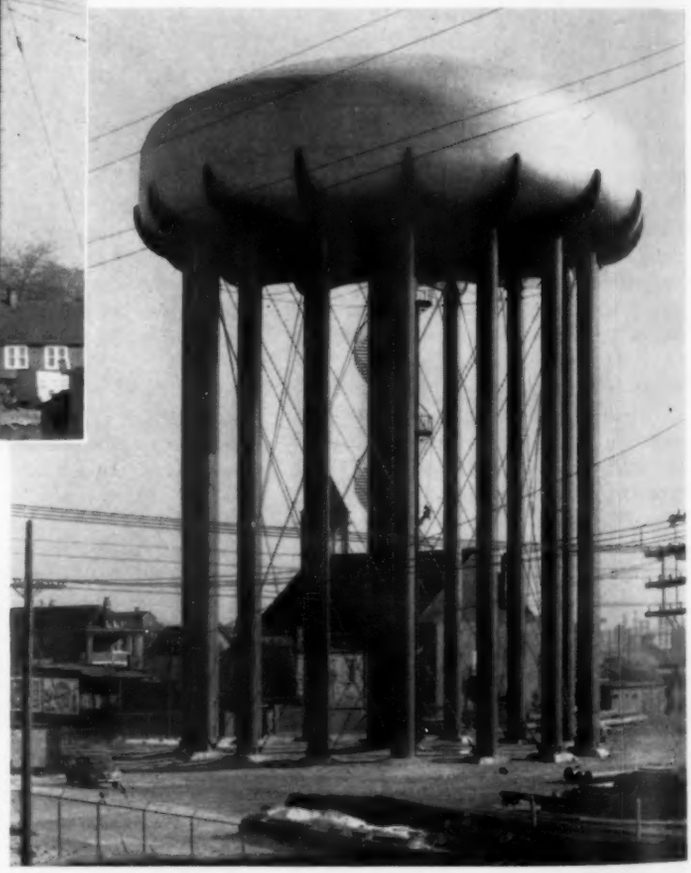
NORTHERN INDIANA PUBLIC SERVICE COMPANY . . . .

Looks to HORTON ELEVATED STORAGE

to raise water pressures in outlying districts from a low of 8 lbs. per sq. in. during peak load periods.

By installing the 1,500,000-gal. Horton elevated water storage tank shown below and the 750,000-gal. tank at the left, the Northern Indiana Public Service Company expects to increase water pressures in the outlying areas served by its distribution system in Gary, Indiana. In addition to solving the pressure problem, it is expected that elevated storage will relieve the strain on the pumping equipment during the peak load periods (usually between 7 and 8 o'clock P.M.) and thereby lengthen the life of the equipment.

The pressure problem at Gary is not an uncommon condition under direct pumping, and the erection of Horton elevated water storage tanks is the logical solution to this problem. Engineers and city officials are invited to write our nearest office for quotations on Horton elevated tanks to help solve pressure problems or to provide the basis for a general improvement in water service.



ENGINEERING DATA ON THE GARY INSTALLATION

Source of water—Lake Michigan
Area served—44 sq. miles
Miles of mains—180
Size of mains—2 in. to 30 in.
Number of meters in system—17,000
Number of fire hydrants—1015
Average daily consumption (1st quarter of year)—12,000,000 gals. (summer months) 23,000,000 gals.

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Atlanta 3 . . . . . 2114 Healey Bldg.
Washington 4 . . . . . 703 Atlantic Bldg.
Detroit 26 . . . . . 1501 Lafayette Bldg.

Plants in BIRMINGHAM, CHICAGO and GREENVILLE, PENNSYLVANIA

Water Supply and Treatment

Norfolk Plans to Line Mains with Cement

NORFOLK, VA., is giving serious consideration to the possibility of lining some old mains with cement, according to N. Z. Ball, principal assistant engineer, Department of Public Works. Many of the mains have been laid without lining and have become badly tuberculated.

Norfolk is now in the process of installing 12,000 lineal feet of Lynchburg cast iron pipe lined with Enamaline. The pipe varies in size from 20 to 6 inches. Prices for laying it are running close to the preliminary estimate, Mr. Ball reports. Successful bids are as follows:

20″	$1.78
12″	0.99
8″	0.81
6″	0.74

Other extensions authorized include the installation of 16,500 feet of 6-, 8-, and 12-inch pipe.

Tifton, Ga., Extends Its Water Distribution System

NEARLY 15,000 lineal feet of National 6-inch cast iron water mains plus an appropriate number of M & H valves and hydrants without steamer connections, are now being installed at Tifton, Ga., to serve a recently-annexed section of the city. According to City Manager Frank H. Smith, this improvement will be financed, in so far as possible by money in the city's general fund. Any expenses that the general fund cannot meet will be met by revenue redemption certificates. The work is being done by J. I. Newton Co., of Tifton.

Sewerage extensions also will be undertaken shortly. The cost of the sewer extensions will be paid by revenue redemption certificates which will require making a charge of about 75c per month for each connection with the sewer system all over the city. Engineering contract on sewer system has been let to J. B. McCrary Engineering Co., Atlanta, Ga.

Boiler Feedwater Treatment

HIGH-PRESSURE steam boilers, those symbols of strength and power, are actually on the delicate side and more fussy about water than the most crotchety of humans, Sheppard T. Powell, Baltimore consulting engineer, pointed out in a paper on "The Quality of Water and Its Value for Industrial and Domestic Uses," presented at the annual spring meeting of the American Society of Civil Engineers.

Metallic salts, such as lead and even arsenic, which are cumulative poisons when they enter the human system, can be identified in small amounts, in "most of the public water supplies throughout the country," Mr. Powell stated. The human system does pretty well in fighting off these ingredients so long as the maximum amount does "not exceed one-tenth of one part per million, preferably about half of this concentration."

"But," Mr. Powell told his listeners, "high-pressure steam boilers demand as close to complete elimination of all organic and inorganic solids as possible, and even traces of silica may be objectionable under certain operating conditions. Water for boiler feed uses in industry, and particularly for high-pressure boilers, must meet certain highly specialized requirements, and corrective treatment will depend on many factors."

Water Tank Collapses in Council Bluffs, Iowa

THE WATER department at Council Bluffs, Iowa, apparently has been tricked—by water.

Recently one of the city's two elevated water tanks collapsed. Roaring down from atop this hilly river city, the wall of water and ice caused the deaths of two children, and critically injured their mothers.

One house was demolished, another damaged. A car was pushed a block before being left a wreck. Large cakes of ice finally came to rest in front of a school from which pupils had been dismissed a half hour earlier.

Immediately there arose demands for investigation.

W. H. Campen, President of the Omaha Testing Laboratories, reported that "wet ground under the tower was one of the direct causes of the collapse."

He stated that tests revealed that the soil (of a loose type) was wet to a depth of 18 feet around the tower. This, in his opinion, was enough to weaken the supports of the tower footings.

Mr. Campen reported that the steel in the tower legs was in good shape, and definitely was not the cause of the collapse.

Franklin Jensen, Superintendent of the Water Works, said that the tower had overflowed occasionally, but that 99% of the overflow water was carried away by a drain pipe.

An attorney representing the family whose home was wrecked stated that a basement wall was loosened by water seepage last summer. The wall had been repaired by the Water Department.

ART JOHNSON
Omaha, Nebr.

Foundation failure is believed to have caused the collapse of this Council Bluffs Tank.

SEAPARKS

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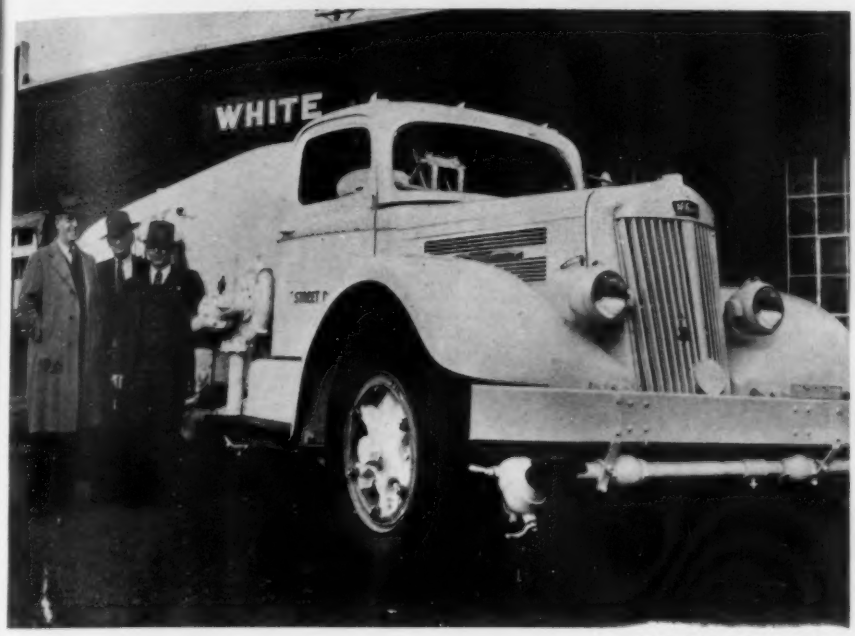
Street Construction and Maintenance

Tulsa Adds New Flushing Equipment



WHITE MOTOR CO. PHOTO

Commissioner of Streets George H. Stones, Superintendent of Streets Clarence M. East, and F. L. Squires of the Tulsa Equipment Co., examine one of Tulsa's flushers.

STREETS will be scrubbed more thoroughly in the future now that Tulsa has strengthened its cleaning equipment with a new flusher. This new unit is a Big 6 South Bend street flusher with a tank of 2,100-gallons capacity. The tank has two baffle plates to minimize water movement. It has an inside overflow pipe for filling and a float-filling gage.

The tank is mounted on a Model WA 26 White Super Power truck, which carries a 19-hp Continental motor that powers a 700-gpm Aurora 3½-inch centrifugal pump to furnish water pressure to the nozzles.

The flusher is equipped with two sides and two front 2½-inch connections carrying bronze spray nozzles.

Parts of Hot-Mix Manual Issued Separately

THE Asphalt Institute is now making available portions of the Hot-Mix manual which was issued last fall. The subdivisions cover:

Part I — Recommended Thickness Requirements for Hot-Mix Asphaltic Concrete Paving.

Part II—Specifications A-2—a Hot-Mix, Hot-Laid Asphaltic Concrete Paving, dense graded aggregate type.

Part III—Specifications A-2—b Hot-Mix, Hot Laid Asphaltic Concrete Paving, graded aggregate type.

Part IV—Inspection of Hot-Mix Asphaltic Concrete Paving.

Part I gives a guide for the thickness of pavement for the various types of subgrade conditions. Specifications A-2-a and A-2-b are alternates and supersede former specifications A-2 for Asphaltic Concrete Surface Course (Coarse Graded Aggregate Type) and Specification B-8 for Asphaltic Concrete Base (Coarse-Graded Aggregate Type).

The four parts are available either through THE AMERICAN CITY or The Asphalt Institute, 801 Second Ave., New York 17, N. Y.

Mistaken Identity

Last month in "Charleston Tries Sand-Asphalt Streets" (page 115) we confused Charleston's veteran City Engineer, B. M. Thompson, with W. L. Howerton, General Superintendent of the Dickerson Co., contractors on the Charleston project in the caption of this picture. The picture shows Mr. Howerton (left) and Roy Roscoe, Parker Laboratories, Charleston.

Racine, Wis., Street Construction Work

Racine Wis., uses an Adams motor grader for spreading and finishing work on city streets that have recently had a new course of crushed stone.

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Modernization?

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R 1517

Sewerage and Sewage Treatment

Alisal, Calif., Uses Single Stage Circulation

The sewage treatment plant of the Alisal, Calif., Sanitary District utilizes single-stage bio-filtration. Its principal units consist of a 40-foot Clariflocculator; a rotary distributor for an 80-foot bio-filter and a 35-foot-diameter secondary clarifier. Two 30-foot sludge tanks are used and operated in accordance with multi-digestion principles.

San Diego Sewage Treatment Costs

IT COST San Diego, Calif., a net of $10.90 per million gallons to treat its sewage during the year 1944-45. The gross cost amounted to $14.40 excluding amortization and depreciation; however, each million gallons of sewage yields $3.40 worth of fertilizer thereby reducing the cost.

The sewage treatment plant, completed in 1943, furnishes primary treatment and was the first important municipal application of the Vacuator to assist in removing settlable solids; it elutriates the sludge so that it can be dewatered more easily. The plant is relieving a dangerous condition in the San Diego bay. Pollution became so bad that it was creating damaging corrosion to the ships anchored there.

A Visual Sludge Draw-Off Device

THE *South African Municipal Magazine* reports an interesting method of controlling sludge draw-off to prevent the introduction of supernatant to the digestion tank. The method utilizes a point of inspection in the line which the operator can use conveniently. The item describes the device as follows:

"Arising from the definitely cumbersome, dirty, and inefficient method chosen for discriminating between sewage and raw sludge in the operation of sludge draw-off from the original sedimentation tanks, a simple and inexpensive device was incorporated in the 3 inch diameter delivery line from the humus pump, to enable the operator to determine accurately when all the humus in any one tank has been discharged through the pump. It consists of a standard cross piece located at eye level in the rising main, and the two branches diametrically opposite are covered by plate-glass discs in a manner which permits easy access for cleaning. Externally attached to one branch is a suitably hooded 50 watt electric lamp and to the other is a cowl. The lamp burns whenever the motor runs, and the intensity of light passing through the water column in the pipe provides a visual check on the humus content. Until the humus is cleared the column is opaque and the dividing line between the humus and tank liquor is found to be remarkably defined.

"The incorporation of this device in a raw sludge line from a statically operated sedimentation tank has yet to be done, but whatever the outcome, the author wishes to emphasize the desirability of drawing off consistently raw sludge as undiluted as possible, to avoid any subsequent sludge thickening process which might have to be resorted to to conserve sludge digester capacity."

This method of sludge draw-off was described in a paper delivered by G. B. Dersley to the Institution of Municipal and County Engineers (S. A. District), discussing the Germiston sewage disposal works.

Where Concrete Pipe Can Be Used Safely

CONCRETE pipe can be used without fear of deterioration in any part of the sewerage system that is not troubled with hydrogen sulphide. Fred D. Bowlus, Office Engineer, County Sanitation Districts of Los Angeles County, Calif., pointed this out to the American Concrete Pipe Association at its recent meeting in Chicago.

House connections, street lateral systems, and mains collecting fresh sewage before the sulphides have had an opportunity to be generated, are safe locations for the use of concrete pipes. When the sulphide begins to be generated, clay pipe offers the solution most often employed by the Los Angeles Sanitation Districts insofar as the diameter of this type of pipe will permit.

Court Upholds Philadelphia's Sewer Rentals

STREAM pollution abatement received a boost in Philadelphia recently when the Pennsylvania Supreme Court upheld the right of Philadelphia to impose a sewer tax.

This tax, probably not to be levied until sometime later in the year, will be based on the amount of water used within a small property. Owners of small properties probably will pay a sewer tax equal to their water bill, while large water users, such as industrial establishments, will pay proportionately less, down to a minimum of 50 percent of their water bill.

Officials state, however, that the tax will not become operative until the sewage treatment program is finished. During the first year, the sewer charge will be 60 percent of the water bill, and for the succeeding year the bill will be increased until the full amount of the levy is reached.

The sewer rental charges that Philadelphia is making are as listed in the following table:

½-inch	water	ferrule	100%	of the charges for water
⅝ "	"	"	95%	" " " " "
¾ "	"	"	85%	" " " " "
1 "	"	"	85%	" " " " "
1¼ "	"	"	80%	" " " " "
1½ "	"	"	75%	" " " " "
2 "	"	"	70%	" " " " "
3 "	"	"	65%	" " " " "
4 "	"	"	60%	" " " " "
6 "	"	"	55%	" " " " "
over 6 "	"	"	50%	" " " " "

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Aviation and Airports

Airport Federal Aid Bill Becomes Law

THE Federal Aid Airport Bill became a law last month with President Truman's signature authorizing $500,000,000 in federal expenditures for airport construction and development during the next seven years. The funds will be appropriated on the basis of half for population of the state and half for its area. The states and municipalities must match the federal funds.

According to the American Municipal Association, the Civil Aeronautics Administration has urged that inquiries be directed to its nine regional offices rather than to Washington. District offices, it states, will be established in almost every state. CAA further advises states and cities to continue airport planning in order to expedite the actual construction.

At present $356,250,000 has been set aside for state use but nothing will be assigned to cities until the CAA engineers have determined the local needs.

According to Representative Randolph of West Virginia, the seven-year program will mean 3,000 new airports and the improvement of 1,600 others.

Airport Building and Planning Shows Increase

AIRPORT PLANNING in local communities has shown a sharp increase since the end of the war, according to figures compiled by the Airport Planning Division of the Civil Aeronautics Administration, T. P. Wright, Administrator of Civil Aeronautics, announced recently.

Many towns have requested information about airport development; a great number have asked for details concerning federal aid. Construction actually is under way at other locations. Among these are: Harrison, Ark.; Dubuque, Iowa; Guthrie Center, Iowa; Perry, Iowa; Wichita, Kan.; Worcester, Mass.; Pellston, Mich.; Bartlesville, Okla.; Okemah, Okla.; Dimmit, Texas; Floydada, Texas; Graham, Texas; Lampasas, Texas; Lufkin, Texas; Mason, Texas; New Boston, Texas, and Parkersburg, W. Va.

Other evidences of interest shown include requests from several hundred towns for CAA airport engineers to inspect airport sites. A great many have submitted master plans covering several years of development; others are now at work improving existing airports and several have purchased the necessary land, or hold options on it. U. S. cities have appropriated or have available a total of more than $150,000,000 for airport development.

Florida's Air Freight Potential

TO SOME extent, air freight may compete with present methods of shipping and marketing winter fruits, vegetables, and flowers from Florida; however in order to compete successfully, the produce must be of superior quality and command a higher market price. Air freight may play a much greater role in the development of highly perishable sub-tropical and tropical crops and flowers not now shipped in large volume.

Virtually all varieties of fruits and vegetables produced in Florida are harvested in quantity within 50 to 75 miles of Miami and Plant City, both examples of desirable air-freight concentration points.

From a special report by the United States Department of Agriculture and the Edward S. Evans Transportation Research of Washington.

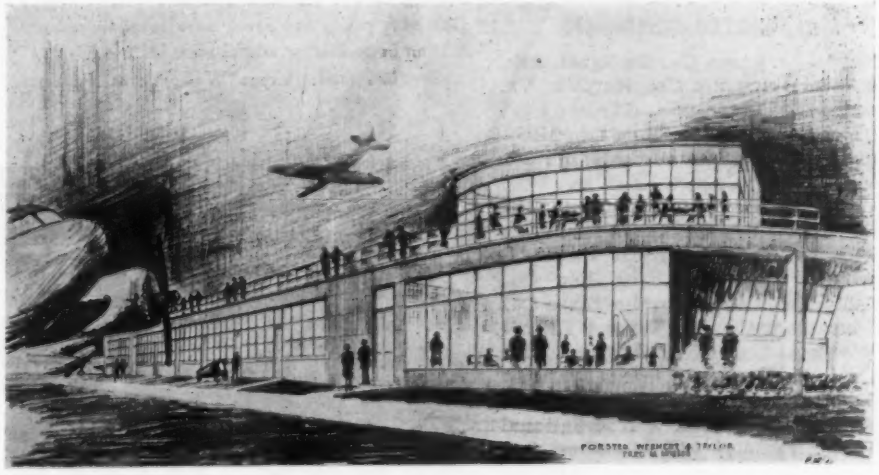
Toledo's Airport Terminal Features Glass

SETTING the pace in the trend toward "open design" architecture for airport buildings plans for the new Toledo, Ohio, municipal airport administration building provide for extensive areas of glass. Details of the new building have been released by Clayton L. Piper, Commissioner of Engineering for the city. The building was designed by Fred Morris of Forster, Wernert & Taylor, Toledo architects.

Making practical and attractive use of the products of glass manufacturing firms located here, the rectangular shaped modern structure incorporates 14,000 square feet of space with its entire length overlooking the airport runways. The hub of the landing strips will be immediately in front of the building, and can be viewed from any angle through "walls of glass."

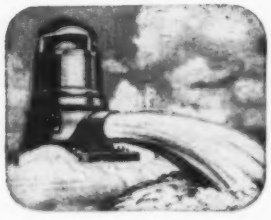
The long structure will be 250 feet long, and one-story high except for the wing at the western end of the building. There, a second floor dining room will be located over the first floor lounge and adjoining cocktail bar and coffee shop. In this wing an unobstructed view of the field for passengers and visitors is obtained by use of an entire "window wall" across the 44-foot first floor lounge, a 32-foot expanse across the cocktail lounge, and a 60-foot bank of windows across the landing-field side of the second floor dining room.

The unusual vision area of the passenger and office facilities, in keeping with the latest airport trends, will be provided by the Libbey-Owens-Ford Glass Company's new type of insulating windowpane, known as thermopane. Its double-glass construction which provides insulation in winter and assists in summer air conditioning, will be used in the passenger lounge, coffee shop, bar, and second floor dining room.



Unobstructed view to the outside for passengers and visitors is accomplished by use of an entire "window wall" across the 44-foot first lounge, a 32-foot expanse across the cocktail lounge, and a 60-foot bank of windows across the landing-field side of the second floor dining room.

WHEN YOU VISIT MODERN MEXICO CITY



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Public Safety

Atlanta Receives Fire Waste Award

GRAND award winner of the national fire waste contest sponsored by the United States Chamber of Commerce and the National Fire Waste Council during 1945 was Atlanta, Ga., with the best record of accomplishment among more than 600 cities enrolled in the annual year-round campaign of fire protection.

First award winners in the six population classes of the national contest were:

Class I (population over 500,000)—Chicago, Ill.
Class II (250,000 to 500,000)—Atlanta, Ga.
Class III (100,000 to 250,000)—Wichita, Kans.
Class IV (50,000 to 100,000)—Schenectady, N. Y.
Class V (20,000 to 50,000)—Marietta, Ga.
Class VI (under 20,000)—Fort Lauderdale, Fla.

Assisted by the various civic and patriotic organizations in the city, the Atlanta fire department kept the 1945 loss down to $425,195, or $1.21 per capita. The city has an active Fire Prevention Bureau and has in effect the latest National Board of Fire Underwriters Fire Prevention Ordinance and the 1943 Building and Electrical Code.

An active educational program is carried out in the schools, and the junior fire marshals have been credited by Fire Chief C. C. Styron with a 50% reduction in residential fires since Atlanta first received the grand award in 1935. Representatives of the fire department meet regularly with the Fire Prevention Committee of the Chamber of Commerce. In cooperation with the department, the city's Junior Chamber of Commerce sponsors Fire Prevention Week in October and the Women's Chamber of Commerce sponsors the Fire Prevention Clean-Up Campaign in April.

Atlanta has twenty fire stations manned by 347 firemen. The fire-fighting equipment, primarily of the American LaFrance type, includes twenty pumping engines, six city service trucks, four aerial trucks, a floodlight truck, and a salvage and rescue truck. In 1938 a 1,000-gallon Peter Pirsch pumper was bought and in 1939, a 100-foot aerial. A 1,000-gallon Mack pumper was purchased in 1944 and five additional ones were added in 1945. The department also uses vapor or fog nozzles and Indian fire pumps. The apparatus is conditioned in the department's repair shop, which is equipped for making parts and building apparatus.

Detroit Places First in Pedestrian Protection

DETROIT, MICH., took top honors this year in the Seventh National Pedestrian Protection Contest sponsored by the American Automobile Association.

In competition with 1,250 cities, Detroit received the grand award on the basis of its showing both in the pedestrian protection program and in improved safety record for persons afoot.

Kansas placed first among the states, with Delaware second. Winners in the various population classes for the cities follow:

Over 500,000 population—Detroit, Mich.
100,000 to 500,000—Wichita, Kans.
50,000 to 100,000—Berkeley, Calif.
25,000 to 50,000—Wauwatosa, Wis.
10,000 to 25,000—University Park, Texas
Under 10,000—Little Falls, Minn.

NFPA Celebrates Fifty Years of Service

AT THE anniversary meeting in Boston June 3-7, the National Fire Protection Association received world-wide honor for its fifty years of service in the war against fire.

Organized in 1896 "to promote the science and improve the methods of fire protection and prevention," the Association is an international clearing house for all kinds of information that is authoritative on the subject of fire protection and fire prevention. A non-commercial, non-profit organization, it is supported by the dues of its members, who number over 150 national organizations and more than 10,000 individuals.

The Association sponsors three important sections: a Fire Mutual Marshal Section organized in 1927, a Marine Section organized in 1934, and a Railroad Section organized in 1944. A major activity is the production of complete popular and technical literature in the field of fire waste control.

Since 1923 a field service has been maintained for the purpose of making direct contact, through a paid staff, with the states, provinces, and cities throughout the United States and Canada to stimulate good fire control practices. The work of the NFPA field engineers had been recognized as a prime factor in influencing the development of techniques and practices in cities and states that have directly led to substantial reductions of loss of life and destruction of property by fire.

Safety Films Completed

THREE new sound slide films emphasizing the need for a safety-conscious public have been completed by the National Safety Council.

"For You and Yours" describes the national safety movement and presents an urgent appeal for cooperation, while "On Record" stresses accident reporting and records as the keystone of prevention efforts. "Mary Jones Goes to Court" shows how traffic courts operate in the interest of public safety.

Further information about the films may be obtained from the National Safety Council, 20 North Wacker Drive, Chicago 6, Illinois.

A Vital Network

THE greatest single improvement in the arrest and prevention of crime in modern times has been the application of radio communication to police work. Its speed and ease of operation, plus the fact that unlike other facilities of modern technology, it cannot also be used by lawbreakers, has made it the most powerful and elastic instrument in the war against crime.

Its use in Southern California, once limited to the larger communities, is now being extended by means of networks on monitoring systems. Azusa is the latest town to join the foothill community chain which embraces Pasadena, Covina and other localities.

This is good for Los Angeles also, for now the patrolling range of the police will extend to cover scattered and isolated regions until now regarded as comparatively safe by elusive criminals.

The day should not be far off when every square foot of Southern California will be within reach, and within the action of efficient police equipped with radio.

Southern Californian enthusiasm for police radio is exhibited in the editorial reprinted above from the April 17 Los Angeles Examiner.

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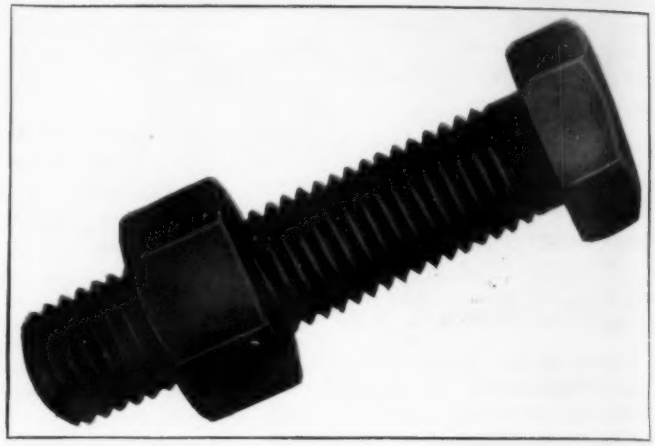

Duronze* Meter Bolts and Nuts Will Appreciably Reduce Maintenance Costs

Meter bolts are probably the least expensive item in the construction of water meters, yet the costly nuisance of rusty, "frozen" bolts and nuts, or the failure of certain type of non-ferrous bolts may ruin what is otherwise an excellent product.

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Communities planning new installations or modernization of existing facilities; manufacturers of water meters and other equipment will find it profitable to investigate the use of bolts, nuts and other parts made of Duronze Alloys. Write for the 80-page Duronze Manual containing valuable data and suggested applications for five modern engineering alloys. *Trade-mark Reg. U. S. Pat. Off.

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Vol. LXI, No. 6 The American City June 1946

Making the Most of a Civic Center Building

And other municipal assets of Nelson, British Columbia

By WALTER W. WAIT

EARLY in 1935, while most of the Canadian cities were still trying to shake free of the depression, and Canadian industry as a whole was making its first lethargic moves towards resuming its normal course, the city of Nelson, B.C., population about 7,000, was already active with plans for building a civic center. There was a crying need for recreational, educational, and social conveniences, and the citizens had decided by ballot to construct a civic center, to cost about $150,000, which would take care of these wants. Some five years before, when the depression had first hit the continent, the Nelson citizens had voted down the project, but now the by-law vote was overwhelmingly in favor of construction.

The main needs were a skating and a curling rink, both with artificial ice; an auditorium capable of seating a large body of people for purposes of conventions and general meetings; and a gymnasium with badminton and basketball courts.

A suitable plan was quickly found. So well was the whole idea drafted that, with but few minor changes, we believe that the civic center could not have been laid out better. All the conveniences are housed under one roof. In fact, many another Canadian city, thinking of post-war construction for civic needs, has consulted Nelson on its plans.

Money Well Spent

The civic center was not built with the idea of making it pay its own way. Even at the estimated cost of $150,000, the citizens were content to make up a deficit through increase of taxes should it be necessary. Their main idea was to have a safe place for their children to play. Even though the eventual cost was in the neighborhood of $300,000, the average citizen had not regretted the extra sum, for the center has reduced juvenile delinquency to the vanishing point—small cost in the long run to have achieved so desirable an objective.
tion.

Then, having made the civic center a reality, the city went even farther. On the advice of Mayor N. C. Stibbs, the services of Ed Kelter were obtained as managing-instructor of the center. Mr. Kelter represented his homeland, Denmark, at the Olympic games, and teaches gymnasium work. During the summer the city retains his services at Lakeside Park where he gives free swimming instruction to any desiring it. All gymnasium classes are also free.

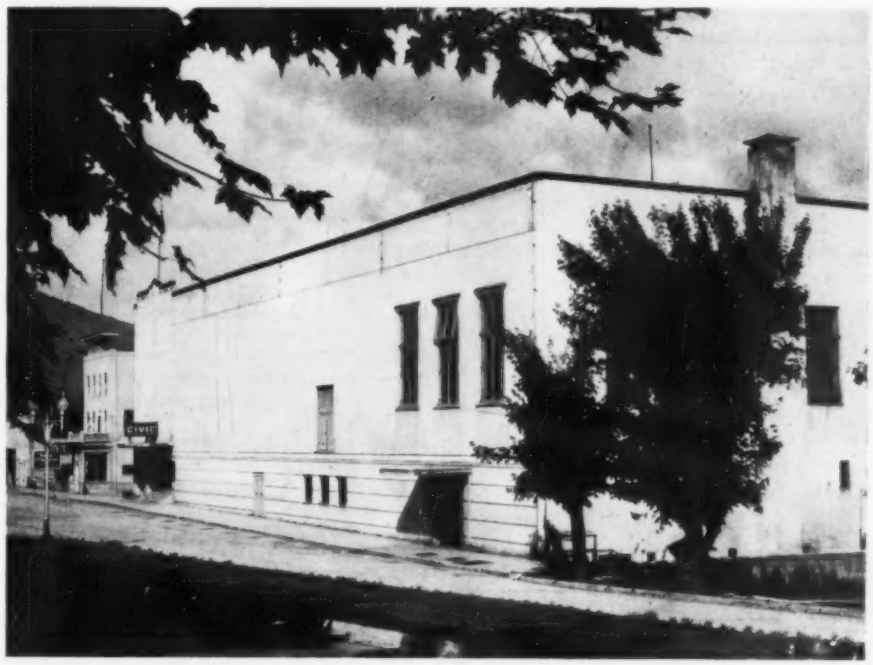
The citizens use the civic center freely and it is estimated that during the last winter season an average of 8,000 people attended it each week for recreation and amusement.

Annual Bonspiel for Curlers

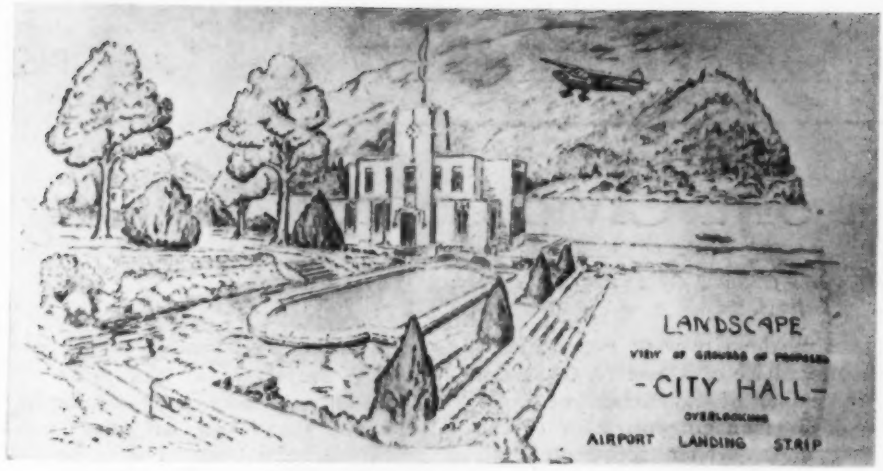
The idea of a summer bonspiel for the curlers is the latest move sponsored by some of Nelson's more aggressive boosters, and was made possible only through having the artificial ice at the curling rink. Last year the first summer bonspiel in Canada was staged in Nelson in the first week in July. In all nearly seventy rinks were represented, about sixty of them being from outside points, including the state of Wisconsin, all Canadian provinces from Manitoba west, and the Yukon. It was so successful that the bonspiel is to be an annual event.

Airport and New City Hall

Nelson is also awake to the future of aviation and is taking steps to build an airport. Although handicapped greatly by geographic position on a mountain slope that rises in irregular gradations and makes it difficult to find a suitable site for land-based planes, the citizens of Nelson want a base. Plans have already been drawn which will give a runway of some 3,000 feet. This will entail making a fill along the waterfront of the city and reclaiming land which is ordinarily submerged a considerable part of the year. A section of this area forms a portion of land held by other interests, while other parts are held by riparian interests. These rights will have to be relinquished before the city can proceed with the proposed construction.



Nelson's $300,000 civic center meets recreational needs of the entire community.



The proposed city hall, with city offices and auditorium, will overlook airport.

Other projects along the waterfront include a site for a tourist park and about 125 cabins; a continuation of the sea wall from Lakeside Park to the tourist center, a distance of about half a mile; and a sewer extension.

A number of leading men of the city, including Mayor Stibbs, are pressing for the early construction of a new city hall. The present one has outlived its usefulness and is too small. The proposed one would provide for board of trade rooms, women's institute rooms, council chamber and committee rooms; and an auditorium capable of seating about 300 people, a room which old timers would be free to frequent, and the city police offices. Several sites are available within two blocks of the heart of the city.

It should be mentioned too, that the civic center is not Nelson's only municipal asset. The city owns its own power plant, water works, street railway, gas plant, and public library. And although situated in one of the most beautiful spots in the Selkirk mountains, Nelson retains nine beautiful parks within its limits.

Nelson's happy financial position is due in great part to its far-sighted and aggressive administrators. From John Houston, Nelson's first mayor, down to the present mayor, N. C. Stibbs, the mayors, and aldermen too, have put their city first and have worked hard to bring her to the fore. It was John Houston who saw the great possibility of a power plant back in 1897 when others scoffed at him, saying there would never be enough mines in the district to use all the power he wanted to generate from the Kootenay River. Houston and his supporters refused to give up and carried the day. Because of his foresight, Nelson now has a civic utility from which it derives nearly $150,000 profit annually.

Such was the caliber of Nelson's first mayor. Under the direction of Mayor Stibbs, the net debit of the city has been reduced from $671,542.56 to $277,303.82 or a matter of $404,238.74 in the last eight years. In 1945 gross bonded deft was $1,013,976.28, but against this sum there is a sinking fund of $736,674.46, which is $96,676.68 more than is requi.ed. Therefore, the net debt is $277,303.82.

Nelson as a city is not yet fifty years old and it was less than six years ago that the first crude log cabin was erected on the heavily wooded slope of the West Arm of Kootenay River. Nelson's progress has been steady and sure. It has never known a boom, never a depression. It has always been the center and leader of West Kootenay.

Approaching the city from the west at night the traveller looks down upon a valley studded with lights, for besides having well-lighted streets, the city provides each resident with a free porch light. It is these two factors which give the city its beautiful nocturnal appearance.

Senate Approves Wagner-Ellender-Taft Bill

THE Wagner-Ellender-Taft Bill (S. 1592) to "realize as soon as feasible the goal of a decent home and a suitable living environment for every American family," was approved by the Senate on April 15, substantially in the form reported by the Senate Banking and Currency Committee. One amendment added by the Senate requires the payment of prevailing wages in the construction of housing on which mortgages are insured by FHA.

Four major policies are laid down in the bill:

(1) Encouragement to private enterprise to serve as large a part of the total housing need as it can;

(2) Governmental assistance where feasible to enable private enterprise to serve more of the total need;

(3) Governmental aid to communities desiring to clear slums and provide adequate housing for low income groups, such aid to be extended only where localities demonstrate that the need cannot be otherwise met;

(4) Consolidation of government housing functions in a single National Housing Agency.

The public housing provisions of the bill resume the public low-rent housing and slum clearance program by authorizing additional payments of federal annual contributions aggregating $88,000,000 at the end of four years and thereafter to help bring rentals within the means of low-income families. For the development of housing for low-income rural non-farm families, loan and annual contributions assistance is provided to local public agencies. Contributions may total $25,000,000 at the end of five years following enactment of the bill.

The sale of permanent war housing and other federally-owned housing to local public agencies for low-rent use is made possible by Title IX of the bill. Preference in such housing is to be provided for servicemen and veterans' families of low income.

In addition to the title establishing the National Housing Agency as a permanent agency, the bill provides for research, market analysis, and local planning; strengthens the existing FHA and FHLBA tools for providing housing for moderate income families and returning veterans; sets up aids to enable private enterprise to serve "middle income" families; establishes yield insurance to stimulate direct private investment in housing for families of moderate income; establishes a program of federal loans and contributions to localities for clearing slums and blighted areas for redevelopment; and authorizes the Department of Agriculture to provide credit and subsidy assistance for low income farm families in need of housing.

As this issue of THE AMERICAN CITY goes to press, no action on the bill has been taken by the House.

Baltimore's Mayor Designates June 3-10 "Living War Memorial Week"

BY PROCLAMATION of Mayor Theodore R. McKeldin, issued May 7, the citizens of Baltimore will observe the week of June 3 as "Living War Memorial Week." During that week the Mayor urges his fellow townsmen "to give due consideration to the fact that the present economic condition of the country as a whole and the necessities of human life in general speak with compelling power in behalf of 'living war memorials' of abiding usefulness rather than another type of memorial which contributes nothing that constantly enriches the stream of human life.

Bagley, Minn., Sewage Treatment Plant An Example of Good Architecture

Demonstrating how a utilitarian service can be attractive through the use of architectural concrete.

FEW sewage treatment plants serving small cities have enjoyed as careful and successful architectural attention as the plant serving Bagley, Minn. This community, the county seat of Clearwater County, built its plant during the PWA days. The plant furnishes primary and secondary treatment by means of a trickling filter.

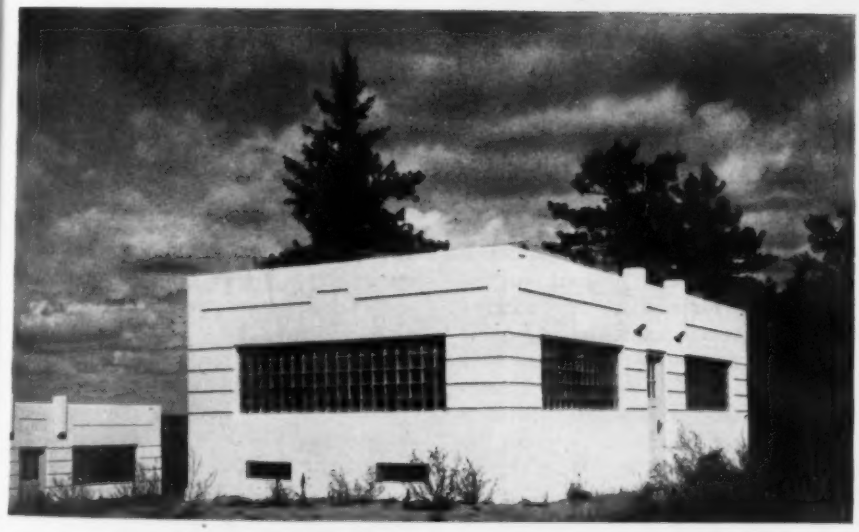
A round domed building houses the filter; similar buildings of architectural concrete hold the primary and secondary settling tanks, the pumps and heating units.

The engineers made liberal use of glass blocks for windows and produced interesting effects by horizontal restication strips to emphasize the long low lines. A simple cornice added to the filter building adds dignity and attractiveness.

The fact that the plant site is on a hill made certain engineering problems and required added pumping units. A concrete sewage lift station in the town helps to bring the sewage to the plant and serves part of the community in the low-lying areas.

Druar and Milinowski of St. Paul, Minn., were the engineers.

PORTLAND CEMENT ASSOCIATION PHOTOS



ABOVE: *The plant nestles among pine trees, which make an attractive background for the white architectural concrete.*

LEFT: *The building at the right houses the settling tanks and the one at the left the pumping and heating equipment. Notice how the architectural treatment emphasizes the long low lines.*

LOWER LEFT: *This round building houses the trickling filter.*

LOWER RIGHT: *The engineers were able to provide an efficient operation design by placing the buildings at three elevations.*

Britain to Build New Satellite Towns

Planned decentralization to replace chaotic sprawl

By JOHN F. ECCLES, O.B.E.
Managing Director of Welwyn Garden City, England

BRITAIN IS TO BUILD new towns —satellite towns. A recent pronouncement by the Minister of Town and Country Planning indicates that the British Government has now formally accepted the main principles of the Abercrombie Greater London Plan. In particular, the final decision has been taken to restrain the over-all growth of London's population and industry and to proceed immediately with a planned program of decentralization.

Not Whether, But How, New Towns Should Be Built

For half a century there has been great concern about the expansion of London and other great centers. In the years between the wars, suburb was added to suburb until millions of people were living on the dreary fringes of the magnetic capital and of such large cities as Glasgow, Birmingham, Liverpool, Manchester, and Sheffield.

This undisciplined growth might have gone on forever if the voices of those who for years had been calling for an end to the chaotic sprawl had not been reinforced by the shattering roar of Hitler's bombs. The dust had scarcely settled on the fantastic heaps of debris which were once homes, factories, and shops, before people were saying, "When we build again, it must be a cleaner, more spacious city. Those congested tenements, that huddle of mean streets must not return."

And so a simple question was posed. Should the resulting overspill of London's congested ring of boroughs find a home in new contiguous suburbs, or should it take a leap of a few miles across a green belt of farms and woods and parks to form new communities? The answer was clear and unequivocal. The Great Wen, as Cobbett had called London, must grow no more. That is why, the British people are now "new town" conscious, and that is why during the next twenty years we are likely to see the creation of a dozen completely new towns of varying sizes up to 60,000 population, half of them in the Greater London area and the remainder in the neighborhood of other great cities.

This astonishing change from the everlasting expansion of cities on a disorderly basis to the orderly construction of new towns as satellites will shortly have the seal set upon it by reports expected from the departmental committee set up by the Minister of Town and Country Planning under Lord Reith. Many British committees have touched upon this question in the past, but they have always been concerned with the problem of whether or not such new towns should be built. Now the problem is not whether they should be, but how they shall be built.

The essence of these new towns is that they must be complete, self-contained units, which provide all the normal requirements for accommodation, work, recreation, and entertainment which any reasonably homogeneous urban population may be said to require. In this way they differ from some experiments elsewhere, including some of the greenbelt town experiments in the United States, where the main purpose has been to provide residential enclaves as pendants to a large city.

Letchworth and Welwyn Point the Way

In many respects these new towns will be breaking fresh ground, but not entirely so, since there are already two world-famous examples which, although by no means complete, have tackled vigorously the many problems, physical, personal, and sociological—which the new enterprises inevitably create. These two experiments are the Garden Cities of Letchworth and Welwyn, both in the county of Hertfordshire, north of London.

The first was started just over forty years ago and the second about 25 years ago. Their populations today are approximately 22,000 and 17,000 respectively. Letchworth is about half finished and Welwyn is not much more than one-third complete, but enough has been done in both these experiments to warrant regarding them as the general prototype of the new towns now proposed.

In confirmation of the general theory that a prophet is usually without honor in his own country, it is worth recording that both Letchworth and Welwyn seem for years to have been much better known as examples of modern urban development to the rest of the world, particularly the United States of America and part of Europe, than they were to Britain's state departments.

It required very pungent comment on the development of the Greater London area during the twenty years between the two wars, by Sir Patrick Abercrombie in his monumental report on the Greater London Plan, 1944, to focus the attention of government circles on these two large-scale and vital experiments in conscious town-building. For Professor Abercrombie is emphatic in his view that London is far too large and should not be allowed to grow any more. He believes that it should, in fact, be reduced during the next few years by building half a dozen or more satellite towns at distances from twenty to thirty miles from the center of London to which industry and people should be transferred.

His recommendations are so uncompromising, and references to the experiments at Letchworth and Welwyn so clear-cut, that no government could safely ignore his views. The setting up of Lord Reith's Committee to consider the question for the country as a whole, and not merely for the London area, and the recent government decisions about London are natural developments.

Although Lord Reith's Committee has not yet published any report, two interim statements containing recommendations concerning the appropriate organizations to be set up for the purpose of building these new towns are available now.* The precise terms of any such recommendations are of course not known, but there is such a wide consensus of informed public opinion that it is quite safe to predict their general lines.

Government-Sponsored Development Organizations

Both Letchworth and Welwyn have been carried out by groups of enthusiasts who were prepared to provide funds to build those Garden Cities, although their expectations of large incomes from their investments could not have been very great. Despite the success which has been achieved by these two undertakings

* Interim Reports of New Towns (Md. 6,759, 10c, and 6,794, 15c). Sales Department, British Information Services, 30 Rockefeller Plaza, N. Y.

These are pictures of the Garden City of Welwyn. Above, an open space; right, a typical byway; and below, a residential area. On page 5 of this issue there is a picture of a scale model of Letchworth, Britain's other garden city, which is about half finished, according to Mr. Eccles.

and the fact that both are now financially unassailable, it is fairly clear that the work of building new towns is not a job for private enterprise in the political atmosphere of Britain today.

On the other hand, there is a fairly strong general view that a government department as such would be equally inappropriate, and that in particular a local authority such as a city council or county council is also not ideal for the purpose. There is consequently a general trend towards the establishment of government-sponsored commissions, one for each projected new town, which would be saddled with the responsibility for the major development operations arising out of the work of creating these new communities. These organizations would not take the place of local civic authorities for the new towns, which should be created as soon as possible after the foundation of the town.

In other words, the government-sponsored commissions would be development organizations working side by side with the civic authorities.

The commissions would, of course, derive their authority from the Minister of Town and Country Planning, and their finances would be arranged under government sponsorship. However, it is expected that any such bodies would have a considerable amount of freedom in choosing the methods by which they organize the work of building their respective towns. It is believed that in this way the good qualities usually attributed to private enterprise—such as initiative, energy, and speed of work—would be retained along with the ability to exercise the maximum public and social responsibility implicit in these projects.

The forthcoming report of Lord Reith's Committee will be read with keen interest by all sociologists, and whatever the detailed nature of the recommendations there remains the fair certainty that nothing will now be allowed to stand in the way of building these new towns.

Ebenezer Howards' Vision

Many readers may well be wondering where these revolutionary ideas originate, as they seem to have arisen almost overnight. The answer is fairly simple. Some fifty years ago a somewhat obscure but nevertheless brilliant and practical English philosopher, Ebenezer Howard, wrote a book now known as "Garden Cities of Tomorrow."

In brief terms, the theme of the

work was a plea for the provision of a new form of urban and country environment for the people, designed to give them greater power to develop freely and fully their personalities and lives. The method proposed was the building of new communities of limited size, directly associated with the surrounding country, in which work, living space, social services, and personal pleasure and recreation would all be harmoniously balanced to the greatest possible extent.

A band of enthusiasts gathered round Sir Ebenezer Howard and founded, first, the Garden Cities Association, now known throughout the world as the Town and Country Planning Association of Great Britain. Shortly afterwards in 1903, Howard and his friends founded Letchworth, the first Garden City, and later, in 1919, with Howard still the chief pioneer, they founded Welwyn Garden City.

The world-wide influence of Howard's ideas during the last half century must be acknowledged by all observers. It is interesting that in the year when Britain has decided to build new towns, a new edition of Ebenezer Howard's original book has been published, with a preface by F. J. Osborn, one of Howard's co-pioneers, and an introductory essay by Lewis Mumford, the well-known United States writer and philosopher.

And so with the decision to build new communities affecting the lives of well over a million British citizens during the next few years, it has come about that the ideas of an obscure man fifty years ago have spread round the world and have finally returned fully developed to the country of their origin.

It is at this stage that the sociologists and the town-planning enthusiasts are finding it desirable to pause and contemplate with a certain amount of humility the immense problem with which they are faced. For it is a very common human experience to find, after aiming at an objective for many years and after reaching what appears to be its full realization, that a new kind of problem has replaced the old.

The New Towns Must Satisfy Human Needs

This new problem is the great risk of our natural human tendency, when dealing with projects of the magnitude now envisaged, to concentrate on the technique and forget the real end, of which Howard in particular never lost sight. The technique of town-planning and town-building — good layout, homogeneous architecture, balanced use of land, and so on—is reaching a high state of development, and modern engineering and building methods are likely to make the task of building these new towns a far less formidable problem than faced by the pioneers at Letchworth and Welwyn.

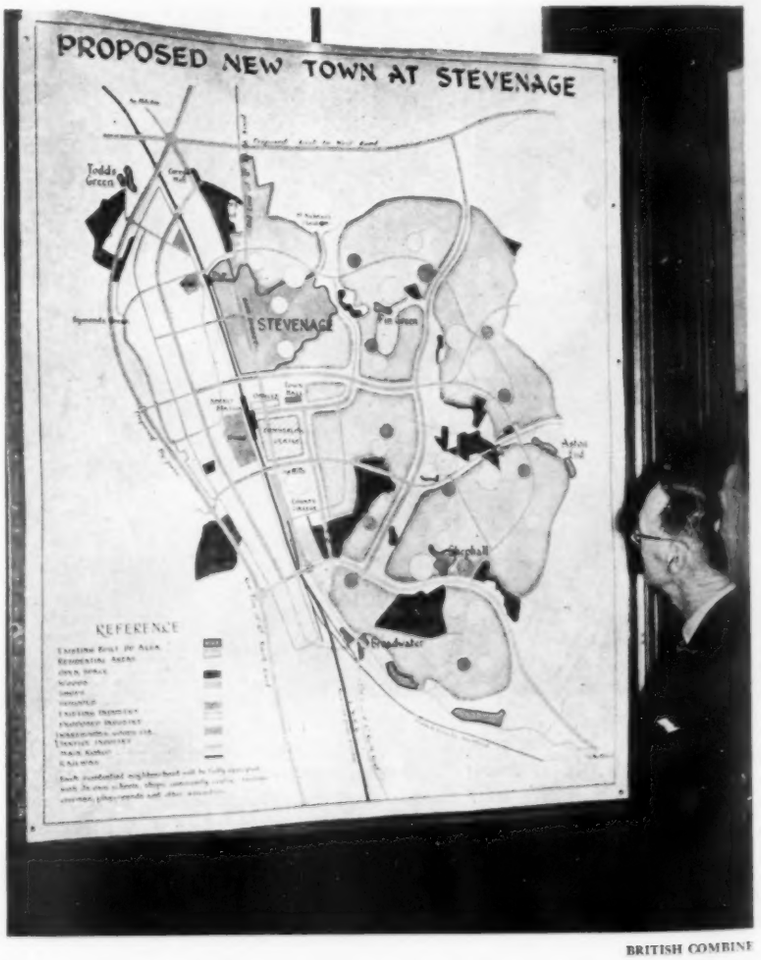
But the sociologists know that bricks and mortar, good layout, beautiful surroundings, and first-rate architecture alone do not constitute a town. A town is nothing less than an association, more or less intentional, of perhaps fifty or sixty thousand human personalities, all with their own individual and corporate aspirations. The preservation of democratic vitality and freedom in such a community, the granting of the maximum facilities for the expansion and development of the human personality, and the need to create a sense of tradition, interdependence, and mutual interest are part of the responsibility which the town builders of today must face.

Spoon-feeding human beings is not desirable, but it is equally undesirable to move people about the country like so many pawns on a chess board, ignoring the scale of modern requirements, particularly in the sphere of recreation and culture—which the vast majority of people today demand as part of their inheritance. If builders of the new towns can provide both a good physical environment and the background for the satisfaction of all other needs, then Britain's decision to build new towns will stand as one of the most remarkable social revolutions of the present century.

EDITOR'S NOTE.—Readers of THE AMERICAN CITY may wish to consult a twelve-page article, "The Garden City Movement—Reaffirmation of the Validity of Ebenezer Howard's Idea," by F. J. Osborn, honorary secretary of the Town and Country Planning Association of Great Britain, published in the January 1946 issue of *Landscape Architecture*, the quarterly magazine of the American Society of Landscape Architects, 9 Park Street, Boston 8, Mass.

See also "Garden Cities and the Metropolis," by Llyod Rodwin, in the *Journal of Land and Public Utility Economics* for August 1945; and replies by Catherine Bauer and Lewis Mumford, and a rejoinder by Mr. Rodwin, in the February 1946 issue of that quarterly. (Publication office, 121 South Pinckney Street, Madison, Wis.)

Site of First Satellite Town Chosen



BRITISH COMBINE

Since the foregoing article was written, the British government has chosen Stevenage, an old Hertfordshire town about an hour's ride from London, as the site of the first of ten satellite towns to be built under the program described by Mr. Eccles.

Public Improvement Program Voted for Cleveland

By S. BURNS WESTON
Executive Director
Metropolitan Cleveland Development Council

THE Cleveland area's first coordinated public improvement program, totaling $55,801,000, submitted by the major units of government—the city, the county, and the board of education—received an overwhelming vote of confidence from the electorate on May 7. The city secured approval of eighteen bond issues in the amount of $35,550,000 in new, voted bonds; the county five issues for $14,066,000 and the board of education an 8/10-mill levy to yield $6,385,000 for financing a building program. The program by the major units of government was arranged so that it would result in no increase in the tax rate.

Requiring a 65% majority vote according to state law in Ohio, most issues swept to victory by 85% to 90% of the total vote. Even the county morgue received a 75% approval.

The 24 proposals include:

The City's Program

City Hospital, $1,200,000.
Health Centers, $200,000.
Airport Development, $2,800,000.
Cemeteries, $100,000.
Street Trees, $300,000.
Parks and Boulevards, $2,800,000.
Lakefront Development, $800,000.
Recreational Facilities, $3,400,000.
Zoo, $1,000,000.
Fire and Police Protection, $2,600,000.
River Improvements, $2,000,000.
Bridges and Grade Separations, $3,200,000.
Central Viaduct, $4,000,000.
Paving and Resurfacing, $1,000,000.
Sewers, $2,400,000.
Sewage Disposal, $5,750,000.
Incinerator, $450,000.
Public Markets, $1,350,000.

The County's Program

County Tuberculosis Building, $4,900,000.
County Administration Building, $3,250,000.
County Morgue Building, $395,000.
County Airport Sites, $510,000.
County General Hospital, $5,000,000.

The Board of Education's Program

An 8/10ths-mill levy for six years to assure the Board of Education $6,385,000 to undertake a long-delayed building program. The money will be used to construct and equip new buildings, build additions or modernize old buildings, and to acquire sites for school purposes. Priority of construction has been given to a new junior high school costing $1,000,000, to be erected in the Brownell-Central Area. A trade school, costing $2,250,000 is next on the construction list. In addition to these, other major projects are:

Charles W. Eliot Junior High School $1,100,000.

Modernization of East Technical High School, $425,000.

Orchard Elementary School, $400,000.

Settlement Elementary School, $225,000.

Iowa-Maple Elementary Building, $150,000.

Lincoln Junior and Senior High School, $275,000.

The remaining funds will be spent for additional equipment and improvements to existing structures.

The pattern for success was laid several months ago, following almost two years of work by the public works and the public finance and taxation panels of the Metropolitan Cleveland Development Council to bring about this unified program. The Coordinating Committee of Public Officials, which had been formed at the request of the Development Council to represent the city, county, Board of Education and suburban municipalities, was asked to take leadership in setting up a Citizens' Committee for a "Bigger, Better, Greater Cleveland" to gain public support for the program. The committee accepted this responsibility.

Month-Long Campaign

Success at the ballot box can be laid largely to the efforts of this committee, which was made up of representatives of industry, business, labor, banking, real estate, women's organization, retail stores, and private citizens' organizations. One month before election day, a vigorous campaign was begun to gain support for the proposals. As an initial step, the Citizens' Committee for a "Bigger, Better, Greater Cleveland" sent out 2,000 invitations to leaders in the community, requesting them to work with organizations, with their friends, family, and business associates to secure approval of the coordinated program.

Five thousand speakers' manuals telling of the community needs and describing the proposals were printed and distributed; 450,000 leaflets publicizing the program were distributed, and 550,000 sample ballots found their way into meetings throughout the community. Labor organizations

Cleveland voters heeded this injunction. This is one of 450,000 handbills used.

mailed out thousands of pieces of publicity to their membership. In addition, placards were placed on taxicabs, billboards, and trolley cars. In one day, alone, 150 speeches were made by volunteers from the speakers' bureau of the Citizens Committee.

Press and Radio Cooperate

A total of 25 special radio programs broadcast to the radio audience the importance of the public improvements to the community, as did the hundreds of spot announcements on three radio stations over a two-week period.

All three major newspapers gave front-page space in every issue, showing through pictorial evidence, the public improvement needs which the program would answer. Editorial comment was made almost daily, and the day before the election sample ballots were carried in the three dailies.

As a result of this citizen effort and interest in the problems of the community, expressed through the Citizens' Committee for a "Bigger, Better Greater Cleveland," the entire 24 proposals were given the "go-ahead" signal at the polls.

This was the first time in the history of metropolitan Cleveland that the major units of government cooperated in a project of this kind and in connection with which there was no organized opposition. Newspapers, public officials and private agencies have given the Development Council credit for making this unity of action possible.

Distribution Does It

Arlington County, Va., made well-engineered changes in its water supply system to meet the rigorous demands of the war years and to put it into healthy condition to handle the heavy post-war load.

ARLINGTON COUNTY, Va., a suburban area of 23½ square miles lying outside Washington, D. C., has all the responsibilities of a city. It has an up-to-date water system, a good set of sewers, it has fire and police protection, schools and libraries, and a closely knit population of more than 110,000, and a county manager. In fact it would have a city rather than a county type of government if it had had the opportunity during the last few years to catch its breath. For in the last eight years Arlington County has nearly trebled in size.

This growth produced many interesting problems of which two of the most important were those of water and sewerage, and of these, water supply was the more challenging. It was relatively simple to build more sewers and to bypass the sewage treatment plant if the load became too heavy—besides, you had to have a mighty important reason to build sewage treatment plants during the war. However, you can't overload a water supply system and make it work. And Arlington's water supply deserved attention as far as the progress of the war went, for the county was jammed with men and women who did the planning that made the planes and guns possible.

Sixty per cent of most water systems is distribution, and supply is the balance. In Arlington, distribution is the whole story. Officials there have no problems of supply as such because the county purchases water from the federal government through the U. S. Engineers office.

Arlington's water history began in 1926 when the Board of Supervisors began action on the county-wide water system. This resulted in the construction of around thirty miles of mains and approximately 1,900 services in 1928. Within the next two years the number of services had doubled and each year thereafter it continued to grow, right through the depression. From 1935 on, services totalled more than 1,000 annually.

During this period, the county received its supply from the federal government's Dalecarlia Filter plant through a 24-inch supply main which crosses the Potomac River at the historic Chain Bridge where it was subdivided into two 8-inch steel mains, later replaced by 20-inch mains giving the system at that time a supply of 10 mgd. The original construction included a 1½-mg reservoir, and a tower with 260,000 gallon capacity, pumps and pumping station. These were reinforced from time to time as the distribution system grew. But when the county's population took a wholesale jump, as it did in 1942-44, more heroic measures were in order.

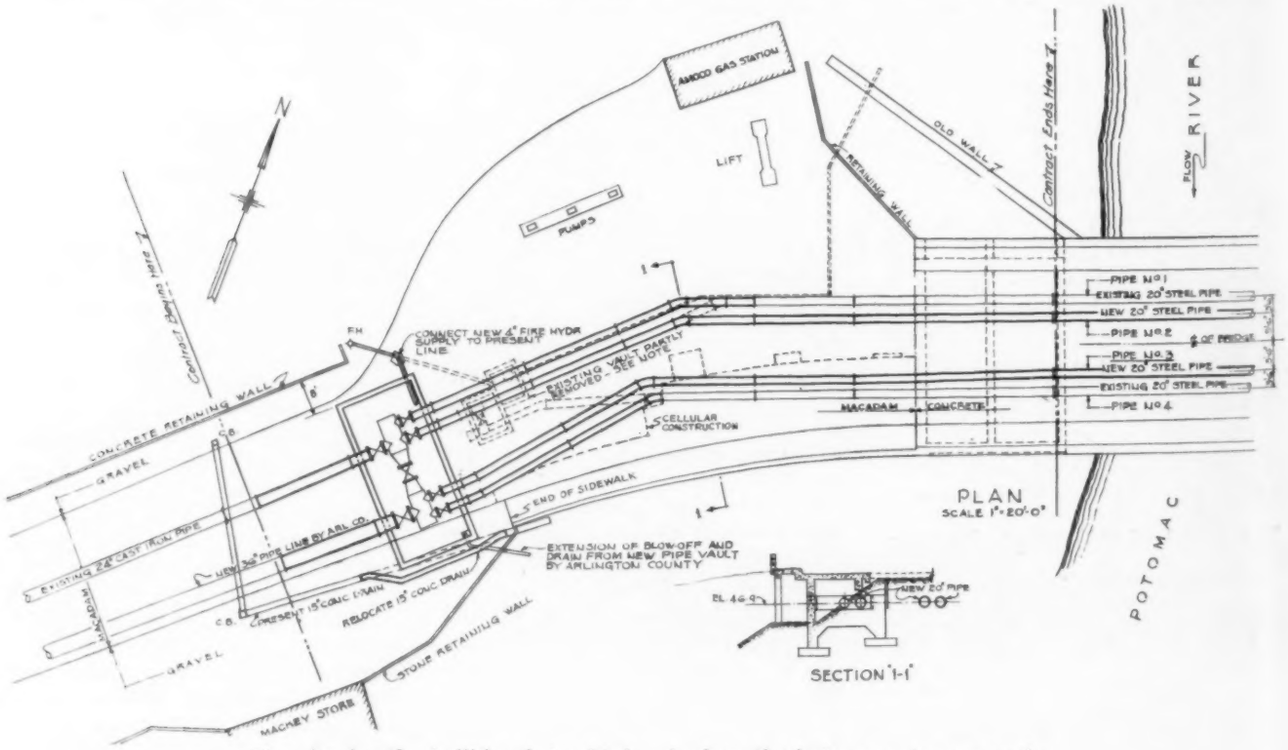
New Supply Mains

Arlington's water improvement program to care for its war population had two phases: construction of additional supply mains, and the erection of water storage tanks for peak load demand.

A. T. Lundberg, Director of Public Service, points out that the improvements to increase the supply consisted of four main projects:

1. Construction of an additional supply main from the Dalecarlia filtration plant to the District of Columbia end of Chain Bridge (built by the U. S. Engineers.)
2. Installation of additional twenty-inch supply mains on Chain Bridge.
3. Construction of a new thirty-six-inch supply main from the bridge to the existing distribution system.
4. Installation of additional pumping equipment at the Ft. Ethan Allen pumping station.

At the Ft. Ethan Allen pumping station there were originally three centrifugal pumping units of 4-, 2-, and 1-mg capacity. In order to make efficient use of the 6-mg reservoir constructed in 1942, the county had to provide pumping units with a rated

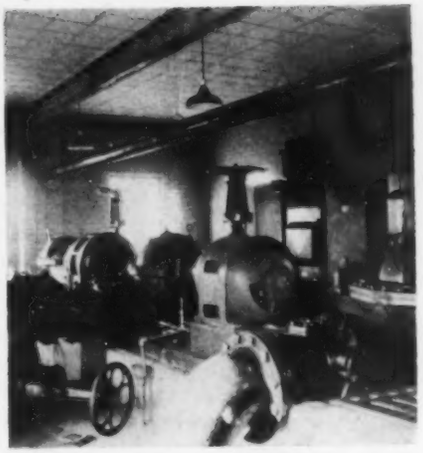


Plan showing the facilities that existed and where the improvements were made.

capacity of 8 mgd. To accomplish this the two smaller pumps were replaced with two of 4-mg capacity, thus making a three-unit installation with one pump held constantly in reserve. This improvement cost $9,740.

The total cost of the supply main program ran to $375,215. The net result of the program was to increase the supply by 300%. The original 24-inch mains to and from the bridge and the 20-inch mains across it gave the county a supply of 10 mgd. The carrying capacity of the new mains is estimated at 30 mgd, so the total supply available is 40 mgd. On the basis of present consumption, assuming that Arlington County remains primarily a residential area, it is estimated that the present system will provide water for approximately 350,000 people.

This is the standpipe at Fairlington. Its capacity is 500,000 gallons. Its flow line elevation is 300. This serves the same general area as the Fairlington elevated tank.



The interior of the Fort Ethan Allan pumping station where three 4 mgd Worthington single stage centrifugal pumps work against a head of 60 feet. They are driven by 75-hp motors.

Increased Storage Improves Pressures

The second part of the program, building water storage tanks, resulted from a study of the lack of water, during critical periods, in the southern portion of the county. A 500,000-gallon steel water storage standpipe erected at the RFC Defense Homes Project known as Fairlington corrected the deficiency and made it possible to maintain a more uniform flow of water to the area. This project was financed by FWA on a 100% grant basis with plans, specifications, and contracts prepared by the county water department and completed at a cost of $50,000. The standpipe was a re-erected used tank installed to avoid the use of "critical' steel.

Further study of the distribution system indicated the advisability of erecting a 500,000 gallon elevated water storage tank. The County, therefore, acquired a four-acre tract of land for $17,000, laid plans for the entire program, and proceeded with the erection of the tank. The cost of this tank ran to $58,785. Connecting mains and other auxiliaries were $5,875.

Both the Fairlington standpipe and the new Ft. Barnard elevated tank, as it is now called, float on the system through the action af altitude valves and obtain their primary supply from the Chain Bridge lines. They can, however, be served through a second pumping station connecting with the Pentagon Building source of supply. This source of supply became available by the elimination of certain county distribution mains when the Pentagon Building and its access roadways were constructed.

Definite plans have been laid for future improvements. One of these involves the construction of two additional 6-mg reservoirs to serve an area known as Minor's Hill. Also projected for this site is the construction of a pumping station and a storage tank to serve the immediate area. The completion of this project would provide a total water storage of 18 mg.

Independent Service Provided

Another projected improvement is the completion of a 16-inch distribution main located on Fairfax Drive. A third includes the construction of a 5-mg ground storage reservoir and pumping station at the Ft. Barnard standpipe site. It will provide an independent continuous service for the lower third of the county.

One of the unusual features of the Arlington program is that the county has built all the improvements on a pay-as-you-go plan. The only time that the county voted bonds for water improvements was when the system was first constructed. Since then, all improvements are being paid for out of current income.

Still another desirable feature of the system is the fact that everything is metered. There is no free water

(Continued on page 137)

The new 500,000- gallon elevated tank with a flow line elevation of 300 is operated on a fill and draw method with Ross altitude valve control.

You can just see the two new 20-inch mains installed on the inside of the chain bridge. The original 20-inch mains are in the shadow of the girder.

The 250,000-gallon brick-veneered steel standpipe and the 1½-mg ground storage tank in the yard of the maintenance building at the Lyonhurst station.

Community Center to Combine Memorial, Civic, and Recreational Features

By GURDON S. BLACKWELL
Member, Board of Directors
Vestal Veterans' Memorial Association, Inc.
Vestal, N. Y.

THE PEOPLE of Vestal, N. Y., population about 5,000, were among the first to make definite plans for a memorial to their sons and daughters who participated in World War II. Community leaders, members of the Vestal Booster Club, enthusiastically took up the task for formulating the plans, assessing public opinion, surveying possible sites, and raising necessary funds. Thirty-three community organizations pooled their efforts to form a single incorporated association, known as the "Vestal Veterans' Memorial Association" with membership dependent upon residence, interest, and signature only.

The first year of the program is drawing to a close under the guidance of the first board of directors of the memorial association. This board is composed of seven men chosen by majority vote from the Booster Club. They are: Raymond A. Edgerton, president; Dr. Harry Shapiro, vice-president; A. Ward Camp, secretary; Lewis P. Warner, treasurer; and Kenneth Brown, Earl Dennis, and Gurdon S. Blackwell. These men represent a cross-section of industrial and cultural interests of this beautiful and rapidly growing community located near the industrial communities of Endicott, Johnson City, and Binghamton.

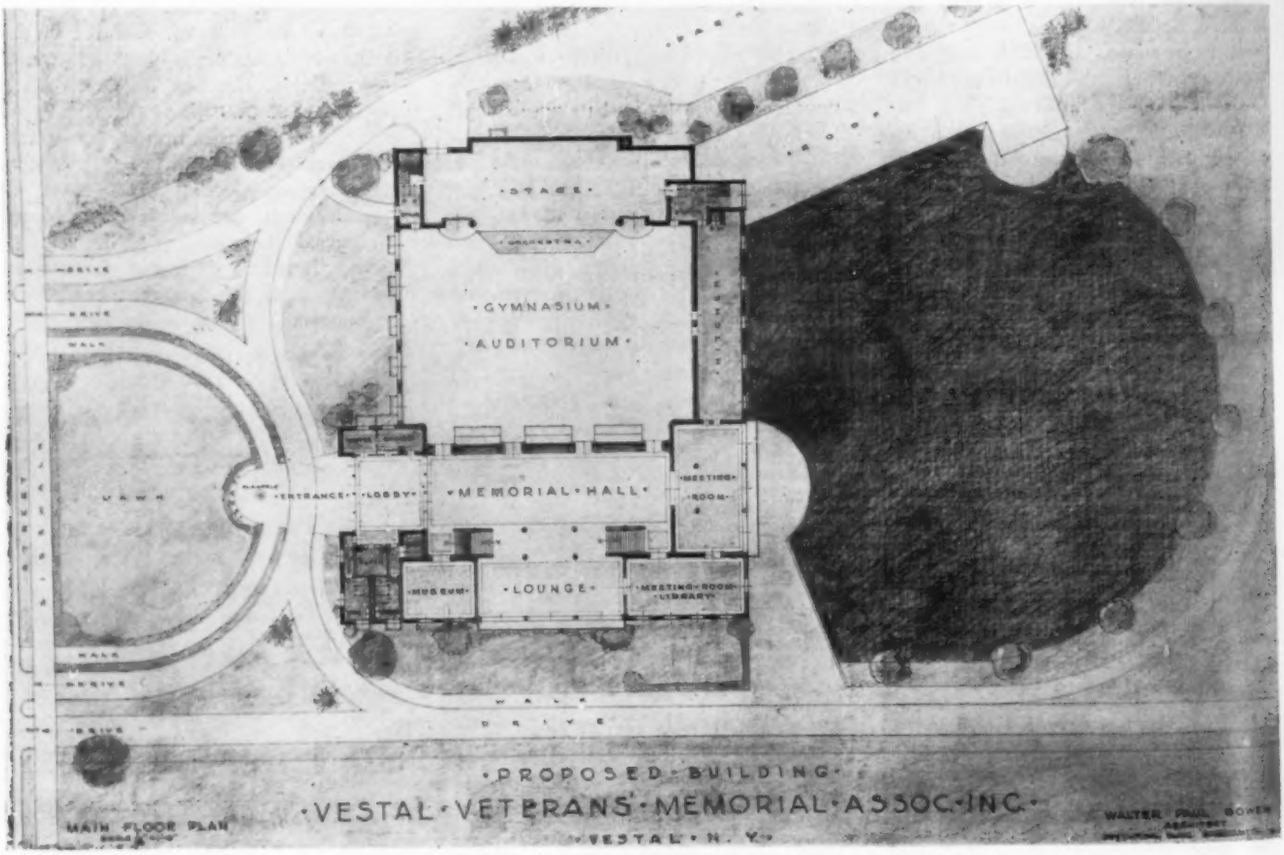
With the full approval of the 1,000 members of the newly formed Memorial Association, the board determined that this memorial should be a magnificent but serviceable housing for all community gatherings, a complete recreation center for old and young, as well as a social and civic meeting-place for all interested in the general welfare of the community. Proper memorial halls will be provided for the 800 veterans, and a tribute to John Eldredge, who generously gave toward the five-acre site selected, will be included.

The site and building area adjoin the eleven-acre tract that accommodates Vestal Central School, the largest school of its type in New York State and serving one of the largest school areas in the state with a population of about 8,000. Recreation facilities will be increased by this junction of grounds.

The architect, Walter P. Bowen of Binghamton, N. Y., has provided for a beautiful and spacious outdoor swimming pool fed by the natural-spring waters of a creek which flows nearby. An indoor gymnasium, bowling alleys, billiard room, basketball court, craft rooms, scouting rooms, nursery, civic forum rooms, a museum, little theater, and motion picture projection equipment are planned.

The total completed cost of the memorial building is estimated at $300,000 under present construction conditions. It is designed to be built in

(Continued on page 137)



Floor plan of the proposed memorial for the town of Vestal, N. Y. An artist's conception of this community center, which is designed to be built in stages, appears on the cover of this issue.

Utilities Reduce Debt of Anderson, Ind.

By R. R. BAXTER
Superintendent
Sewage Treatment Works

ANDERSON, IND., a city of approximately 60,000 population, is the only second-class city in Indiana that owns and operates four utilities—the municipal light and power plant, central heating plant, water works, and sewage treatment works.

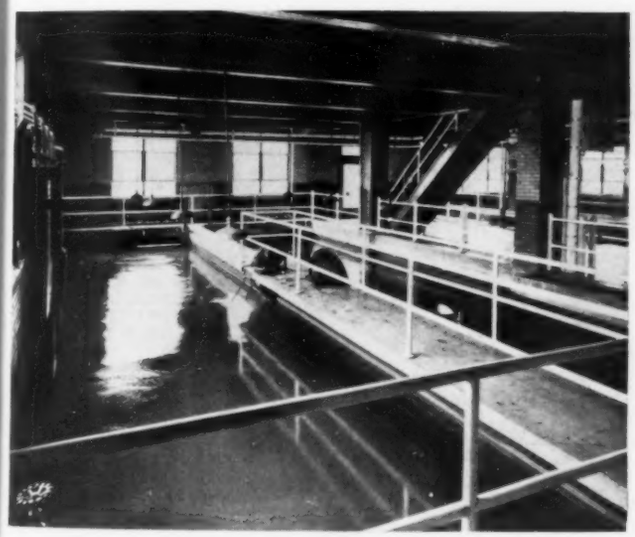
Each utility has shown a profit during the last three years which has been used to help defray the expenses of the city during the critical war years. During the year of 1943 the total collections from the utilities were $1,976,202.91. During 1944, a collection of $2,003,990.48 was made and during 1945 the collection was $2,056,640.84. The average total collections for the year of 1943 was $164,683.57; for 1944, $166,999.20; and for 1945, $171,386.72.

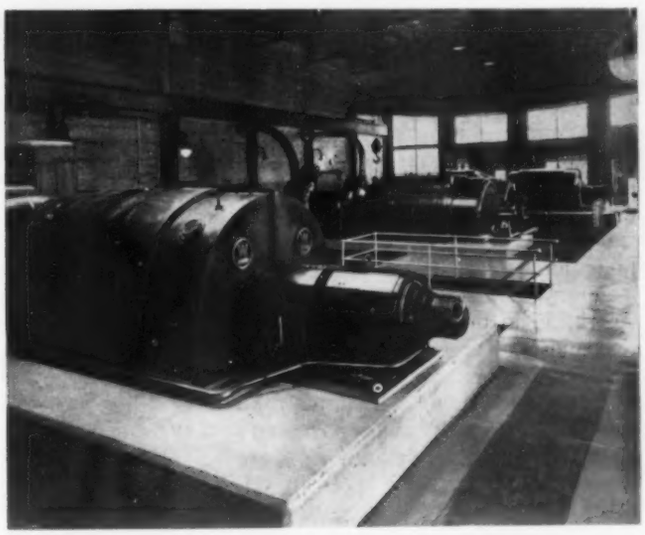
During the last three years around one and a half million dollars have been taken from the utilities; of this amount $400,000 was for extension of water mains and a sewer expansion program; the remaining $1,100,000 has been used in a general fund to help reduce the tax burden of the city. The corporation rate for the last three years has been 63c, 61c, and 80c respectively.

During the last three years the city has paid $772,887.67 on the bonded indebtedness of the city, back wages to firemen and policemen, back gross income tax as a result of a decision in the appellate court, and has provided an increase in wages of approximately $172,000 a year for city employees. At the present time the city has on hand $238,640.16—more money than it started with at the beginning of January 1, 1943. Had it not been for the utilities under the efficient management of their superintendents, the tax burden of the city would have been much higher.

The city has an improvement program, including a new grandstand at the fair ground, a community center, a new fire station, development of water facilities, an aerial survey, a program for additional parks, a downtown parking building and a sewer expansion program, all of which is being developed without an increase in the tax rate.

The city is now manufacturing





Four of Anderson's municipal utilities in action. TOP LEFT: *the water works settling tanks;* TOP RIGHT: *the steam-driven turbines that furnish electricity for the city. The steam plant incidentally is used for central heating;* LOWER LEFT: *Anderson's profitable pipe manufacturing plant;* LOWER RIGHT: *the municipal sewage treatment plant.*

sewer pipe for a sewer expansion program that will run to approximately one-half million dollars and with the manufacturing of this pipe a saving is expected to be made of approximately $100,000.

During the last three years Anderson's water department has spent approximately $325,000 for permanent improvements, all of which have been paid for from current revenues. Anderson's minimum water rate per month is $1.10 which entitles the consumer to 700 cubic feet of water. Its complete rate schedule is one of the lowest in the state of Indiana.

The city has recently received bids for the first of its three-quarters of a million dollar sewer extension program. The program includes about sixteen miles of sewer ranging in size from 12 to 42 inches. The city plans to use pipe manufactured in its own yard and estimates the cost at about $120,000 as compared to the current market price of $170,000. The pipe utilizes a specially designed joint which provides an annular space for jointing materials and makes the line water tight, thus reducing infiltration and cutting pumping costs. The joint for these pipes is patented by Martin A. Milling, Anderson, Ind., who also owns and rents the forms to the city.

Electric System Renovated

The municipal electric system is embarking on a program of rebuilding overloaded lines and extending new lines and facilities. The city has a tentative plan for installing a new 3,000 kva unit-type substation and starting a modern primary network within the next twelve months. Two of the city's substations are equipped with automatic step voltage regulators. Officials report that these are doing a splendid job of improving voltage conditions in the areas served by them, and intend to install similar reguiators in the two remaining substations shortly.

Anderson's municipal central heating plant was acquired in 1942. It was taken over by the city to prevent loss of heating to approximately 60% of the business districts.

Steam for the central heating plant is produced at the light and power plant in a special boiler which is fired only during the heating season. Reorganization of the system has resulted in its operating on a paying basis since October 1, 1944 and the improved service has encouraged others to become new customers. All improvements have been paid for from the earnings of the department.

An Airport Plan Takes Form

By ARTHUR H. LEWIS, JR.
Consoer, Townsend & Associates
Consulting Engineers
Chicago 6, Ill.

THE CITY of Davenport, Iowa, seeing the need for a first-class airport, did not sit by during the war, waiting for someone else to come along and solve its problems. This community worked out its own plans, raised a good proportion of the necessary money, bought the land, and is now prepared with complete plans and specifications, ready to let contracts on the first stage of its airport construction the day materials and labor are available.

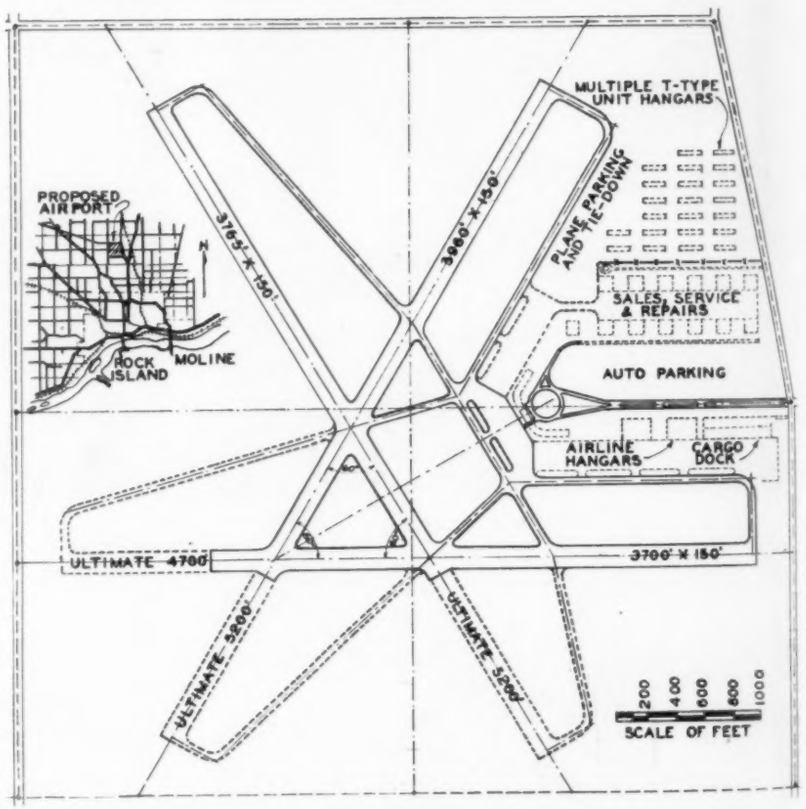
Much preliminary work had to be done before the land could be acquired. Public-spirited civic organizations, citizens, and city officials campaigned long and hard for a referendum on the formation of an airport authority. The referendum was held in April 1944 under enabling legislation provided by the state, and was successful by a wide margin. Included in the referendum proposition was a ¾-mill levy, which nets the airport authority an average of $45,000 annually. Twenty-year income bonds were authorized in the amount of $900,000. These bonds have been sold as needed.

Site Chosen

In 1944, the city acquired an excellent 620-acre site at a cost of $165,000. It is within fifteen minutes driving time of downtown Davenport and Bettendorf, Iowa, and also readily accessible to Rock Island, Moline, East Moline, and Silvis, Ill., by bridges across the Mississippi River.

The site is well drained, reasonably level, is entirely free of hazardous obstructions, and the soil characteristics are as good as can be found in the Davenport area.

The area, including the existing buildings, has been leased back to the former owners for farming purposes each year since its acquisition by the city, and this has yielded an average annual income of $8,500. It is estimated that even after construction of the first stage of the airport, about 250 acres of the site, together with two of the existing four farmsteads, can still



This is the master field layout plan for municipal airport at Davenport, Iowa.

be leased for farming, at an annual return of approximately $2,500.

The initial construction stage is illustrated on the Master Field Layout Plan shown here, which has been approved by the Civil Aeronautics Administration. It is in conformance with CAA standards for Class III fields, and is designed to handle the city's needs for local and feeder airlines, and for commercial and private flying. Subsequent plans call for a Class IV field, with full provisions for adequate air freight and air express traffic. It is predicted that in the next decade the large number of manufacturers in the Davenport area will produce heavy freight and express traffic demand.

Complete Airport Center

The layout provides for a complete air transport center. The administration buildings will accommodate maintenance facilities for air lines, as well as show rooms for distributors of small planes and parts. There will be a public garage for the convenience of plane passengers, so that they can drive to the field and leave their cars to be washed and serviced while they are traveling by air. Ample outdoor parking facilities are provided for travelers, visitors, and spectators. The administration building will have a dining room in addition to the necessary operational facilities. The intention is to have facilities which will not only accommodate airline passengers and other flyers, but also will attract visitors and produce revenue for the city.

The completed field will have three 150-foot-wide runways. The NW-SE has an initial length of 3,765 feet, an ultimate length of 5,200 feet. The NE-SW has an initial length of 3,960 feet, an ultimate length of 5,200 feet. The E-W runway, which will carry relatively little traffic, and which experiences winds of much higher velocity, has an initial length of 3,200 feet, an ultimate length of 4,700 feet. A complete taxiway system is provided, together with an apron capable of handling three or four commercial airliners.

Soil Characteristics

A total of 54 soil auger borings was taken for pavement construction and subsoil drainage design. Visual inspection of the samples showed that the subsoil was unusually uniform throughout the proposed paved areas. The range of soil characteristics for the subsoil is shown in the accompanying table.

SOIL CHARACTERISTICS

Material Passing #10 Sieve				Material Passing #40 Sieve		Capillary Rise of Minus #10 Material	California Bearing Ratio (Soaked)	B.P.R. Soil Classification
Sand %	Silt %	Clay %	Liquid Limit	Plasticity Index	Vol. Change at F.M.E.			
3-10	53-67	14-42	36-56	18-38	9-25	21"-24"	4-7	A-7

Depth of topsoil was relatively uniform, and averaged 18 inches.

The Design Manual for Airport Pavements, published by the CAA, was followed in the pavement design, and independently checked against the consulting engineers' previous design experience on three Army and one Navy airfield. The design criteria were 74,000-pound gross load, with severe frost and poor subdrainage conditions taken into account.

The final alternative pavement designs selected shown below.

Subdrains are provided at the edges of all pavements. Air-entraining Portland cement is specified for use in the apron areas. The specifications provide for stripping of all top-soil from proposed paved areas, but permit its use in constructing embankments in non-paved landing strip areas, as well as in-field and taxiway shoulder areas.

Detailed plans of the proposed administration building have not as yet been prepared. The intention is to defer this as long as feasible, to take advantage of ever-changing thought, and to guard against obsolescence in the plans. The building can be designed, and construction started simultaneously with the construction of the airfield proper, thereby taking advantage of latest ideas and developments.

PAVEMENT DESIGN

CAA Design	Type	Runway Thickness	Taxiway Thickness	Warm-up Zone Thickness	Apron Thickness
	CONCRETE				
R-2c	Granular Sub-base ..	7"	7"	7"	7"
	Pavement	8"	9"	9"	9"
	FLEXIBLE—Non-Bituminous Base				
F-8	Granular Sub-base ..	17"	23"	23"	Not Considered
	Base	9"	9"	9"	
	Surface	2"	2"	2"*	
	Total	28"	34"	34"*	

* Add ½" surface thickness for 200-ft. length at ends of runways.

Port Huron Plans Garbage-Sewerage Plant

THE number one post-war project at Port Huron, Mich., is a sewage treatment plant which will also handle the disposal of garbage, the International City Managers' Association reports. Other dual disposal plants for garbage and sewage that are operating today are at Lansing, Mich., Findley, Ohio, and Marion, Ind. Neenah-Menasha, Wis. has been considering installation of a dual disposal plant.

The entire Port Huron plant including interceptor sewers will cost $1,600,000 of which $130,000 is for the garbage disposal unit. The garbage will be collected in cans, which will be replaced with clean cans, and hauled to the plant, dumped and the cans washed and sterilized and returned to householders at the time of the next collection. Each truck will haul approximately 200 cans per trip. The garbage will be ground and introduced into the digestion tanks of the plant.

Construction of the plant will be financed through the issuance of revenue bonds. A service charge for sewage treatment and for garbage disposal will provide the necessary revenues from which the bond and interest payments will be made.

This method of garbage disposal produces a large amount of gas which will be collected in the Port Huron plant and used for pumping sewage, for the heating of water for use in the digester tank coils, and for the heating of the sewage and garbage disposal buildings. At the present time garbage in Port Huron is collected by a private collector and disposed of by feeding to hogs and in some cases by fill and burial.

Disposal of garbage by grinding and discharge into the sewer system was started in this country in 1933 when Baltimore, Md., built a garbage grinding station to relieve municipal incinerators during summer peak loads. St. Louis in 1934 built the first garbage grinding plant for the disposal of all garbage collected by city forces. Indianapolis set up a temporary grinding plant in 1935 when the garbage reduction plant was out of service.

A Study of the Sanitary Fill at Fort Worth, Texas

Part II—Operating Methods

By R. R. LACY, Superintendent
Waste Disposal Service
Fort Worth, Texas

TWO different disposal methods are being used in the Fort Worth sanitary fill operations. One is the "trench" method and the other is the "area" method.

The trench method consists of excavating an initial trench about 20 feet wide, 3 feet deep, and from 200 to 500 feet in length. Dirt from the excavation is used to build an incline along one edge of the trench. The dumping of garbage is then started at one end of the trench. Trucks may dump from either or both sides of the trench or in the bottom. The placing of garbage and compaction by running the tractor over it is started as soon as the first load of garbage is dumped. Compaction is continued until the mass is fairly firm. A second trench is started immediately adjacent to the first and the excavation dirt is used to cover the compacted garbage and refuse in the first trench. A five-foot berm is left between trenches. Only enough dirt is excavated from the second trench to put a 2-foot cover over the compacted garbage. When one trench has been filled with garbage, another will have been excavated beside it so that once an initial trench has been opened, approximately this same length of trench is always available.

Fort Worth uses a trench 20 feet wide and 3 feet deep. Approaches are spaced 20 feet along the trench to prevent excessive machine travel.

The area method of disposal may be used in connection with reclaiming badly eroded land or filling in existing excavations, ravines, or overflow land along a stream or river. Abandoned gravel pits are well suited to this type of operation. Fort Worth recently started a sanitary fill in an old gravel pit. In this type of operation garbage is dumped into the old excavation along one edge and compaction is started by means of the tractor. After the garbage has been brought to the desired height and thoroughly compacted, it is covered with two feet of dirt. Covering operations are kept close up to the dumping point to prevent fly breeding and offensive odors in hot weather. In some cases it may be necessary to cover all garbage every day with a thin layer of dirt.

Plans have been made to get adequate garbage and waste material disposal facilities before the unsatisfactory conditions which existed when open dump burning was practiced recur. In these plans we expect to take advantage of the experience already gained in disposal by both incineration and sanitary filling and to utilize to advantage both methods, for the plans call for a combination of the two. A modern incinerator will be built in a central location and will replace the remaining two old inefficient incinerators. The new incinerator will serve the business district as is necessary. Outlying residential sections will be served by sanitary fill disposal sites located to reduce truck hauls as much as possible. This combination should provide the maximum of operating flexibility, which means giving the best collection service on a regular basis, for the least cost possible.

Two-Cubic-Yard Bull-Clam Preferred

Fort Worth's experience has been limited to the two-cubic-yard size bull-clam. We have found that this size is suitable for most ordinary conditions because it is small enough to permit easy handling and yet large enough to dispose of quantities up to 500 cubic yards of loose garbage in an 8-hour day. Under favorable conditions quantities up to 800 cubic yards per day can be handled. The term garbage as locally used means domestic and commercial refuse such as table scraps, paper, boxes, cartons, cans, bottles, rags, etc. If compacted in small quantities, this garbage will occupy after compaction about one-fourth the original loose volume.

No accurate check of fill subsidence has been kept and visual observation has indicated very little settlement of the surface except in occasional small spots. Operating loaded trucks over the finished fill and compaction in small quantities will keep fill subsidence at the minimum.

Refuse trucks unload into the ditch from the top of the finished fill.

The area of land needed will depend upon: ((a) the depth of garbage, (b) whether disposal is by the trench or area method, (c) the type and condition of the garbage and (d) the tractor operator's efficiency in compaction. From 8,000 to 10,000 cubic yards of compacted garbage per acre can be disposed of by the trench method.

Difficulties most often encountered in disposal by sanitary fills have been due to weather conditions and equipment failures. A great deal of rain at one time, or a long period of rainy weather may make the fill site inaccessible to trucks and may fill trenches with water if adequate drainage or pumping facilities are not provided. Advantage should be taken of natural drainage of the land in laying out trenches. If no natural drainage exists, a pump should be provided for dewatering the trench. A diaphragm pump is better than a centrifugal pump for this purpose. It is important to provide a wet weather trench which will always be accessible if this can be done. This trench should not be used except when necessary because of weather conditions.

Mechanical failures of equipment will occur even when equipment is new. More flexibility of operation can be obtained by having two or more fills available and by using smaller machines than by a single sanitary fill using a large capacity machine. Fort Worth has four bull-clams for three sanitary fills, one machine being a spare. The extra machine has made it possible to maintain collection schedules several times when one of the units broke down.

Two-Man Operation

We have found that two men are needed to operate each sanitary fill, an operator and a helper. The helper does all of the miscellaneous odd jobs required in an operation of this kind, such as keeping a record of the loads, spotting trucks for dumping, helping truckmen, cleaning up scattered paper and refuse. The operator runs the tractor doing all compaction and covering and acts as sub-foreman in the absence of the general foreman or superintendent. The operator is the key man to this operation and great care should be used to select the best man available.

In these days of scarcity of materials, such refuse as rags, corrugated cardboard boxes, and paper have considerable value and can be easily salvaged in connection with sanitary fill operations. Fort Worth salvages such materials as these at all sanitary fill sites by employing available colored labor on a share basis of the value recovered. Ordinarily each person is allowed half of the value of the material salvaged. The city sells the material and pays the individual from the proceeds. The city's share has been quite substantial during the war years.

On January 1, 1946 the population of Fort Worth was estimated to be 235,800. Prospects are favorable for continued steady growth in the future.

Highlights of Fort Worth's Experience with the Sanitary Fill

1. The cost of disposal by this method averages $0.83 per ton as compared with $1.12 per ton by incineration. This figure is based on refuse weighing 300 pounds per cubic yard.
2. In Fort Worth, trucking costs have been reduced somewhat by locating the fill areas close to areas of population concentration.
3. Both the "trench" method and the "area" method are being used successfully.
4. The two-cubic-yard bull-clam will handle an average of 500 cubic yards of loose garbage (300 pounds per cubic yard) per day. Under favorable conditions it can handle as high as 800 cubic yards.
5. The garbage, after compaction, will occupy one-fourth its original volume.
6. From 8,000 to 10,000 cubic yards of garbage can be disposed of per acre by the trench method.
7. More flexibility can be obtained by having two or more fills available and by using smaller machines than by a single sanitary fill, using a large machine.

LEFT: *A tractor compacts the refuse to approximately one-fourth its original loose volume in the truck.*

ABOVE: *Here is the way the area looks after the fill has been completed. Although work has not been in progress long enough to draw definite conclusions, officials report that they have observed substantially no settling in the completed fill.*

How to Patch and Resurface with Asphaltic Concrete

Ft. Wayne, Ind., uses fine-graded asphaltic concrete to patch and resurface old sheet asphalt streets, to resurface new bituminous concrete, and to patch old concrete sidewalks.

By W. H. DROEGE
City Chemist
and Superintendent
Municipal Asphalt Plant

THE city of Fort Wayne, Ind., has used successfully a fine-graded aggregate hot-mix bituminous concrete for a number of years to patch old sheet asphalt and to repair and resurface old sidewalks. Also, more recently, we have used this mix to form a one-inch wearing surface on a two-inch bituminous concrete binder course in resurfacing a large yardage of old bituminous pavement. We also used it for the first time last year to form a half-inch resurfacing of a compartively new coarse-graded asphaltic concrete street that had shown signs of ravelling.

We designed the mix to make maximum utilization of local materials because it is cheaper than using shipped-in aggregates. The aggregate consists of approximately equal parts of limestone screenings and natural sand, the latter meeting Indiana State Highway Commission specifications for asphalt sand #17. The limestone screenings are those generally used for agricultural purposes and come from the Bluffton and Huntington quarries about twenty miles from Ft. Wayne. The stone shows an average loss of about 25% on the Los Angeles rattler and passes soundness tests satisfactorily The natural sand and limestone screenings are graded to meet the specifications shown in the table.

SPECIFICATIONS FOR NATURAL SAND AND LIMESTONE SCREENINGS

Natural Sand			Limestone Screenings		
Passing	Retained	Percent	Passing	Retained	Percent
#4	....	100	⅜ inch	....	100
#4	#8	0-10	⅜ inch	#10	5-25
#8	#16	15-35	#10	#40	40-60
#16	#50	25-60	#40	#80	6-20
#50	#100	5-35	#80	#200	4-10
#100	#200	1-10	#200	....	8-20

The mix we use for street patching and resurfacing is a mixture of asphalt, limestone screenings, and sand, using 40% and 60% for each of the two aggregates. Our finished mix complies with the following analysis:

Passing	Retained	Percent
⅜-inch	#10	10-25
#10	#40	40-48
#40	#80	13-20
#80	#200	4½-11
#200	....	6-11

Asphalt cement—8.0 to 9.0%

We have used this mixture for the last fifteen years with very satisfactory results for patching sheet asphalt streets. In this patching work, some of which has been on a large scale, no displacement has developed at stopping points and very few cracks have shown up thus far.

The mix formed the *top one inch* course in street resurfacing on a two-inch binder course during the summer of 1945. We made the mix in an ordinary hot-mix plant using well dried aggregate heated to 300°F. The

ABOVE: *A typical concrete sidewalk repaired with an asphalt mix. This has been in place for ten years.*

BELOW: *How new resurfacing looks. This consists of a 2-inch binder supporting a 1-inch wearing surface.*

To improve this residential street the city applied 60 pounds per square yard of asphaltic concrete mix on an asphalt-cement concrete surface. The work constituted part of the 1945 program.

200-mesh material is contained in the limestone screenings and so it is not necessary to add cold filter. The finished mixture as it comes from the pug mill ranges between 275°F and 300°F. This mix closely resembles a standard sheet asphalt mix, as the grading would indicate.

Thin Resurfacing for A/C Concrete Pavements

We used substantially the same mix to resurface a comparatively new asphalt-cement, coarse-graded concrete surface that showed signs of disintegration due largely to laying in cold weather the previous fall. In this thin resurfacing, the asphalt content is boosted about 0.75%. Also, where the surface being resurfaced was comparatively dry, a tack coat of about 0.1 gallons of MC-5 per square yard was applied and permitted to cure about three days before the thin resurfacing mix was spread with a paving machine.

This work must be done in warm weather, preferably atmospheric temperature above 70°F.

Sidewalk Patching and Resurfacing

When we patch and resurface old concrete sidewalks, we use the same mixture as a basis and raise the asphalt content to about 11%. At first we applied a tack coat of asphalt to the old sidewalks before spreading the mix, however, pedestrians tracked this asphalt into the stores and we had to abandon this preliminary treatment. To compensate for it, we added to the asphalt #3 fuel oil at the rate of one pound per 67 pounds of the asphalt cement. This seemed to provide satisfactory adhesion to the old walk without a tack coat even where the mix was thinned out to a feather edge. The fuel oil also preserved to some extent the workability as the mix cooled. This is a help in sidewalk patching work which calls for the slow use of a relatively small amount of the mix.

In patching sidewalks this hot mix is spread by hand-raking and compressed with a hot smoothing iron. Joints in the asphalt resurfacing are made with a standard concrete jointer to match the old sidewalk.

If the sidewalk is broken badly, the workmen take out the unstable concrete and tamp the opening full of the mixture before applying the final surfacing. The thickness of the resurfacing generally ranges from ¾-inch to a feather edge. The deeper openings in the walk could, of course, be tamped full of a cheaper and coarser graded asphaltic concrete. However, because of the small quantity of material required for this bottom course it usually costs less to fill the entire hole with the surface mix. The surface of the sidewalk patch made of this mix fades out after some months to a light color.

We have even repaired old disintegrated concrete curbs by picking and brushing off the defective concrete and replacing it with this mix, tamped and ironed out with hot irons—and they are holding well.

Use of Local Materials Lowers Cost

The city contemplates resurfacing about 200,000 square yards of its old asphalt cement pavements in 1946. Because of a comparatively weak base indicated by the condition of the old pavements, this resurfacing will be usually quite heavy, consisting of a bituminous concrete binder course of 2½" to 3" topped with 1" of this fine-graded bituminous concrete. The city estimates that this substantial resurfacing will cost from ½ to ⅓ less than removal of the old pavement and building new. This work is under the supervision of the writer and under the direction of the Board of Public Works and City Engineer Chauncey McAnlis. The board members are R. G. Beams, Chairman, Fred Menze, and J. J. Johnson.

An asphaltic concrete walk, entrance to the water works filtration plant, consisting of a 3-inch binder and one-inch top laid in 1932.

The Fort Wayne asphaltic concrete can take rough treatment. Here is some that has seen eleven years of service in front of the Anthony Wayne Bank.

Rebuilding of Cities Discussed by National Chamber

LAND assembling and housing, development of major thoroughfares, traffic and parking, and the needs of transit service were projected at the annual meeting of the Chamber of Commerce of the United States, on May 1, as four major problems in the rebuilding of our cities.

Otto K. Jensen, executive secretary of the Indianapolis Redevelopment Commission, outlined plans of the Commission for arresting urban blight where feasible and dealing with areas already blighted beyond rehabilitation.

The commission has the authority (1) to designate blighted areas, (2) acquire them, (3) plan their redevelopment, (4) clear them, and (5) sell them to private enterprise for redevelopment.

Many cities, according to H. S. Fairbank, deputy commissioner, Public Roads Administration, have thus far failed to avail themselves of the opportunity afforded by the Federal Aid Highway Act of 1944 to obtain federal funds for the development of major thoroughfares.

Privately owned offstreet parking facilities, rather than municipally owned, operated, or subsidized facilities, were advocated by P. Y. K. Howat, chairman, District of Columbia Parking Agency.

Charles E. Ebert, president, Philadelphia Transportation Company, asserted the primary need of transit service "is the recognition by chambers of commerce, merchants, government agencies, and the public that sound and progressive transit is an essential requisite of prosperous communities."

Presiding at the session was George W. West, president, First Federal Savings and Loan Association, Atlanta, and Chairman of the National Chamber's Construction and Civic Development Committee.

What Is "Essential Construction" in the Present Emergency?

IN CANADA the Federation of Mayors and the federal government have each been asking the other what types of construction ought to be prohibited as an aid towards meeting the housing shortage.

The story is told in *The Listening Post,* digest of the Canadian Federation of Mayors and Municipalities, for April 13. On April 1, 1946, Minister of Reconstruction and Supply C. D. Howe announced the enactment of Order-in-Council P.C. 1184, giving authority to the municipalities to refuse or revoke building permits for the erection, alteration, or repair of any building or structure which the municipal authority may decide might stand in the way of meeting the housing shortage. A few days later the Executive Committee of the Federation of Mayors and Municipalities met to discuss the order and agreed that such a permissive order would not succeed in diverting the materials from non-essential to essential building. The committee felt that no standard of essentiality or non-essentiality had been laid down to guide officials as a basis for permit refusal. The consequent wide disparity in application and interpretation of the order would, it was felt, merely result in the diversion from non-essential construction in one community to non-essential construction instead of housing.

This opinion was presented to Mr. Howe and he suggested that the Federation furnish him with a list of non-essential construction which he would incorporate in a prohibiting order on such construction. The Committee met again to discuss the problem and, after careful consideration, advised Mr. Howe that, since the federal government has information concerning the situation in all parts of the country and the relative over-all needs which the municipalities do not have at their disposal, any definition of non-essential construction which would apply to the entire country could best be made by the federal government.

The Minister replied that he feels strongly that the control of non-essential building can best be administered by municipal authority. He further pointed out that the federal government was not in a position to distinguish between essential and non-essential building since it does not have complete and full information concerning local conditions.

And there the matter rests.

Well-Balanced Construction Program Urged

ADMINISTRATION of the government housing program for veterans in such a way as not to interfere unnecessarily with other operations of the construction industry was urged in the "Voice of Business" radio program on April 27.

Ralph Bradford, General Manager, Chamber of Commerce of the United States, and H. E. Foreman, Managing Director, The Associated General Contractors of America, participated in the program, which is sponsored each week by the U. S. Chamber and is carried over network of the American Broadcasting System.

Mr. Bradford pointed out that "unless the government housing order is administred in such a way that a great deal of work can go forward promptly, we will have an increasing amount of unemployment — threatening our entire post-war economic pattern."

Mr. Foreman emphasized three points:

"First, all types of construction are vital to the proper functioning of the nation's life. Interference with many types can seriously obstruct and delay the future development.

"Second, jobs for veterans are as important as homes for veterans.

"Third, if the construction industry is going to mobilize effectively, the first thing required is a survey to determine the amount of housing and other types of construction needed in each community."

Toledo Voters Approve Income Tax

BY REFERENDUM vote the citizens of Toledo have approved the action of the City Council in adopting, as an added source of municipal revenue a 1% income-payroll tax.

Commenting on this favorable vote, the *Toledo City Journal* said:

"The vote sustaining the income tax will permit the city to preen itself, rebuild its facilities, extend its services and set a pace of progressiveness for American cities.

"The vote will set the city out as being one American city that has had the courage and the force to devise a tax plan that will yield funds sufficient for modern operation of the city."

The Toledo editorial might have added, of course, that Philadelphia antedated the Ohio city in incorporating a payroll tax into its revenue system.*

* See THE AMERICAN CITY for December 1944, page 91, and Mar. 1946, page 114.

Microfilming as a Record Preservative

Valuable city records must be safely housed or photo-copied

EMERGENCY conditions of recent years have increased the accumulation of city records to the point at which their retention has become a very real problem.

Those records important enough to be retained should be put on suitable paper. The National Bureau of Standards has specifications for the strength of paper, measured by folding endurance, tearing resistance, and tensile strength. A careful selection of inks is also necessary when permanency is desired, for highly acid inks fade and weaken paper. India ink, however, neither fades nor damages the paper, a fact to be remembered when entries are made in ledgers and journals and when contracts are written.

Methods of Protection

If records are worth preserving at all, they should be properly protected and easily accessible. Insuring records is becoming increasingly popular, but many are irreplaceable at any cost. There are two basic methods of protection: (a) combustible surroundings may be eliminated so that the exposure of records to fire is very slight, (b) duplicate records may be kept at different points.

Vaults, safes, and steel files are commonly used to house inflammable records. Open shelving and bins, even within fire-proof buildings, are not highly satisfactory, because the contents are exposed to the air and the paper becomes soiled and brittle. Fire resistant steel filing cabinets and safes are the ideal solution.

In addition to giving ample fire protection, it has been found advisable in many cases to make duplicate copies of important records to be stored away in different places. Microfilming became very popular during the war as a means of providing duplicates. For microfilming, records are arranged alphabetically by name or numerically, and fed to the hopper of the machine. As they pass a certain point in the machine, they are photographed on a 16mm film at a level of reduction so high the printed matter produced cannot be seen with the naked eye. This technique makes possible a volume of reproduction at a low price and a considerable conservation of space.

The life of the film is a factor in favor of microfilming. According to preliminary announcements from the National Bureau of Standards, the safety film used in microphotography has a life equal to that of 100% rag paper, or 100 years. One roll of 16mm film which occupies 4x4½ inches is sufficient to photograph 8,000 bank checks, 5,828 4x6 cards, or 2,352 letters. Special cabinets are now manufactured to house 600 of these rolls of film.

Reading machines for the films are self-contained projectors which are set on a stand or a table so that the reader may be seated before it, and the reel of film is mounted at the top and wound by a crank.

Pros and Cons of Microfilming

The application of microphotography is becoming fairly widespread in the simplification of accounting technique, and engineering departments reproduce entire files of blueprints and plans to offset damage to originals. However, there are certain disadvantages (1) reduction can be made at such a high rate that the film is not easily read even with a projector; (2) when the film runs in a certain sequence, such as alphabetical, it is simple to locate desired information, but when miscellaneous data are being copied, it is more difficult to index for rapid reference; (3) although film has been shown in court and used as evidence, there is still some question of its legality in certain instances.

On the other hand, microphotography has decided advantages: (1) cost is lowered because the film occupies only a small fraction of the space required for the original material; (2) equipment and paper are eliminated; (3) labor is reduced; (4) there is no need to consult old records; (5) if the papers are filmed in sequence, they cannot be lost; (6) the film in a safe deposit box acts as a protection in case the active records are destroyed.

From "Retention and Preservation of Records with Destruction Schedules" by Chicago Bureau of Filing and Indexing. Copyright 1946. $1.00.

One Bill for All City Services

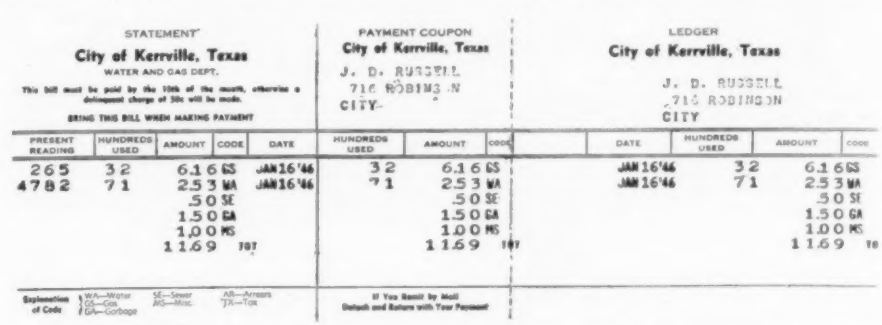
By E. W. MARLOWE
City Clerk
Kerrville, Texas

SERVICES afforded by the city of Kerrville, population 5,572, are water, sewer, garbage, and butane gas. Until recently two bills were presented monthly: one for gas and another for water, sewer, garbage, and miscellaneous services. The old system was accurate but slow, and we were giving too much time to one customer. We now use one postcard bill for all services, thus saving postage as well as time.

The Burrough's utility bookkeeping machine prints all these records, without the use of carbons, through automatic "repeat-printing." It also furnishes totals of revenue classifications by consumption and the money totals for gas and water, sewer, garbage, and for the metered and miscellaneous flat-rate charges.

Each bill is totaled and the grand total is printed on a journal. This grand total is checked by the individual totals for each service which have been accumulated in the registers in the machine. For metered services the machine checks the accuracy of the meter readings.

At first operation the new machine made the following time saving: books that took three hours and seven hours before the change now require 45 minutes and two hours, respectively. We have two girls who do the figuring, billing, and collecting of 1,750 water customers and 1,106 gas customers.



STATEMENT
City of Kerrville, Texas
WATER AND GAS DEPT.
This bill must be paid by the 10th of the month, otherwise a delinquent charge of 50c will be made.
BRING THIS BILL WHEN MAKING PAYMENT

PRESENT READING	HUNDREDS USED	AMOUNT	CODE	DATE
265	32	6.16	GS	JAN 16'46
4782	71	2.53	WA	JAN 16'46
		.50	SE	
		1.50	GA	
		1.00	MS	
		11.69		

Explanation of Code: WA—Water, GS—Gas, GA—Garbage, SE—Sewer, MS—Misc., AR—Arrears, TX—Tax

PAYMENT COUPON
City of Kerrville, Texas
J. D. RUSSELL
716 ROBINSON
CITY

HUNDREDS USED	AMOUNT	CODE
32	6.16	GS
71	2.53	WA
	.50	SE
	1.50	GA
	1.00	MS
	11.69	

If You Remit by Mail Detach and Return with Your Payment

LEDGER
City of Kerrville, Texas
J. D. RUSSELL
716 ROBINSON
CITY

DATE	HUNDREDS USED	AMOUNT	CODE
JAN 16'46	32	6.16	GS
JAN 16'46	71	2.53	WA
		.50	SE
		1.50	GA
		1.00	MS
		11.69	

Kerrville, Texas, citizens now receive their city service bills on a single postcard, as shown above. The one bill, which supplants the two previously used, includes gas, water, sewer, garbage, and miscellaneous services.

Municipal and Civic Public Relations

Housing Recognized in American Design Awards

THE leadership of Ernest J. Bohn, of Cleveland, Ohio, in the field of housing betterment received striking recognition in the presentation to him, on May 1, of one of the four annual American Design Awards established in 1937 by Lord & Taylor, one of New York's great department stores. The other recipients of these 1946 awards of $1,000 each were Dr. Ruth Benedict, Professor of Cultural Anthropology at Columbia University; Dr. Leona Baumgartner, Director of the Bureau of Child Hygiene in New York City; and the New York State School of Industrial and Labor Relations at Cornell University, represented by Dean Irving M. Ives.

Miss Dorothy Shaver, president of Lord & Taylor, in presenting the housing award to Mr. Bohn, pointed out that housing can deal with just houses, structures of wood, cement, and stone: or it can deal with people and the art of living.

"The man we honor today," said Miss Shaver, "interpreted housing to mean both. His respect for human dignity underlies all his work. He sees each group of houses as little nations where peoples of all races, creeds, and customs can live together in harmony.

"Long before federal legislation established the United States Housing Authority, Mr. Bohn anticipated the need for more and better homes. It was his foresight which gave the state of Ohio the first public housing law in the country as early as 1933, and his wisdom was responsible for the establishment of the first housing authority under a state law. In 1937, when Congress finally voted funds to help communities clean vacant land and slum areas, this man was prepared.

"In the execution of these housing projects, he has considered every detail of gracious living. He calls the communities, though scaled for low rent, Estates. And they look like Estates. The tenants, he calls Residents, and they feel and act like Residents. To build his Estates, he called in the city's finest architects, landscape artists, and planners. He tore down vermin-infested houses and built solid homes with well-lighted rooms embodying modern thinking and planning for the convenience and comfort of their inhabitants. These Estates are garden spots, with growing trees, green grass, and flowering shrubs. Where children formerly played in streets, they now play in gardens safe from traffic and danger. . . .

"Today, when building homes for people is one of the greatest problems facing America, Mr. Bohn's work as the Director of the Cleveland Metropolitan Housing Authority, Chairman of the city's Planning Commission, and Director of the Regional Association of Cleveland, stands out as a beacon of accomplishment to every town, city and state in the nation."

Dorothy Shaver, president of Lord & Taylor, presents an American Design Award to Ernest J. Bohn, Director of the Cleveland Metropolitan Housing Authority.

Municipal News for Fort Wayne

THE householders of Fort Wayne, Ind., who are customers of the City Light, Water, and Sewage Treatment Utilities receive a copy of the *Municipal Review* each month. Published by the City Utilities, the paper is designed to appeal to the general public as well as city employees. The publication reports news of the city departments and furnishes data on public service and municipal utilities. News is assembled under the direction of the general superintendent of the City Utilities, with department heads furnishing news.

The paper is edited and printed by the Clem J. Steigmeyer Advertising Agency in Fort Wayne, which writes us that the total circulation is 30,000. The cost for printing an average 4-page issue is 1c per copy. Occasionally the agency prints an 8-page issue at higher cost, but such an issue usually serves as the publication for a two months' period.

Mr. Steigmeyer, in a recent letter to THE AMERICAN CITY, describes the distribution plan as a "particularly happy one" which involves no extra cost. The copies are delivered by the bill passers with the monthly bills for light, water, and sewage treatment. This assures almost 100% circulation in the city.

Although the paper does not carry personal items about city employees, it is enthusiastically received by municipal personnel for the over-all picture it offers of municipal affairs. The general public finds such articles as the Mayor's annual message to the City Council, report on housing for veterans, and news of the various civic organizations to be of interest. Pictures and sketches are put to good use to illustrate the articles.

San Diego Water Department Starts Consumer News-Letter

TO ACQUAINT San Diego citizens with the operation and organization of their municipally-owned water utility, the San Diego water department has undertaken the publication of a news-letter. Distributed to water consumers with their bi-monthly bills, it has already met with favorable comment, and according to V. C. Barnett, editor of the San Diego *City and County Employee,* is expected to do much for consumer cooperation and understanding.

The news-letter is entitled "Your Water Department" and contains four pages of three-column type, photographs, charts, and humorous cartoons. It is printed in black on white paper, and the page size is 6 by 9 inches.

The first issue of the news-letter contains an article on the history of San Diego's water supply system. Subsequent issues are planned to point out that the impounding and distribution of water is much more expensive in San Diego than in other parts of the country. Articles on "How to Read a Meter" and "How to Conserve Water" help make the publication of real value to the consumer.

"Planning Comments" from New Jersey

CHIEF of the Bureau of Planning of the New Jersey Department of Economic Development, T. Ledyard Blakeman, writes us that the department's bulletin "Planning Comments" may become a regular publication. Published by the Division of Planning and Engineering of the Department of Economic Development, and first distributed in December 1945. "Comments" have appeared as the need arose. The publication is distributed to mayors and chairmen of township committees throughout the state and to all planning board members.

Electric Plant Starts the Wheels Turning in Minnesota Community

A low power rate and dependable service attracts industry to Melrose, Minn.

By T. J. MALONE

MELROSE, MINN., — a "ghost town" only ten years ago, with industry flat and everybody down in the mouth—today is a thriving community, with good payrolls and everybody smiling.

Installation and performance of a municipal diesel electric plant equipment helped bring about this economic rebound. The plant began operation July 1, 1937, and the town has been on the upgrade ever since. Favorable power rates to industries and dependable service have been a big factor.

Since 1905, a municipal steam power plant had provided the community's electric service, however, its rates were too high to appeal to industries.

Commission Decides on Diesels to Replace Steam Plant

Therefore the three-member Municipal Light, Water, Power, and Building Commission—official title of the power board—replaced the steam plant with two four-cylinder, 300 horsepower Fairbanks-Morse diesel engines with auxiliary equipment. The pickup was so marked that in little more than two years (November 1939) a six-cylinder, 690 hp diesel was added. Today Melrose's industries include a large plant turning out such products as cheese, powdered milk, and plastic cream; a plant processing poultry and eggs; two memorial stone works; a creamery; a sash-and-door factory.

An REA cooperative is the top user of electric energy there. In 1945 it took more than two-fifths of the total municipal plant output of 4,175,000 kilowatt hours. The largest industry (first named in foregoing), running 24 hours a day and employing several hundred workers, consumed nearly one-fifth of the plant output, or 801,170 kilowatt hours.

In 1944, energy demand was crowding plant capacity so hard that peak loads were being met only by cushioning the service to the REA "co-op."

The co-op operates a power station of its own in another part of the area and it and the Melrose plant tried to accommodate each other's peaks in true cooperative spirit. In that year, with its three units running almost to capacity, day and night, the Melrose plant averaged 13 kilowatt hours to a gallon of fuel oil.

Bursting at the seams, the plant, after enlarging its building, installed a fourth diesel last July, a seven-cylinder, 1,400-hp with auxliaries. The four units have a combined capacity of 2,690 hp. Their rated capacity is 1,853 kilowatts; by units, 200—200—473—980. The average load in 1945 was 1,150 to 1,200 kilowatts, the peak, 1,450.

Total investment in the diesel plant was $297,850 as of December 31, 1945, without depreciation. This represented the cost of the land, building, heavy machinery, other equipment and distribution system. Plant earnings had retired a total of $133,350 in revenue certificates. There remained $99,400 in outstanding certificates to be paid. At the estimated rate of future earnings, it was expected to retire this debt in three years or less.

The total revenue for 1945 was $74,248.55 and the operating expenses $48,318.32; earnings of $25,930.23 were 34.9% of revenue. Because of assured increase in volumes of energy generated and sold, yearly earnings in the next few years should be considerably in excess of those in 1945. In 1944, revenue was $55,722.29 and earnings 30.4% of revenue. In 1940, the first full calendar year in which three units were used, revenue was $46,052 and earnings 48.6% of that. In 1938, first full calendar year of use of the two initial units, revenue was $24,520.91, of which earnings were 40.8%.

A difference of $65,100 will be noted between the total investment, as of December 31 last, and the total of certificates issued. That difference represents value of the distribution system taken over, fully paid for, from the steam-plant regime plus improvements to it since which were paid for by plant earnings. Incidentally, the diesel regime paid off a $6,000 debt on the steam plant.

How does service to the REA cooperative tie in with the operating program? The cooperative has about 2,300 subscribers, including eight creameries, a cheese factory, and a flour mill. The Melrose municipal plant, serving more than half of the co-op's consumption, supplied 1,768,600 kwh to it in 1945.

The co-op paid an average of 1.19 cents per kwh. It cost the plant .89 cents per kwh to produce at the switchboard. That profit of more than one-third, offsetting in part operating costs, helps in making favorable rates to local power users.

Old and New Rates

When the diesel plant took over, it continued for a short time the current rates of the steam plant. These, flat rates for all services, were: first 30 kilowatt hours, 12½ cents a kwh; next 20 kwh, 10 cents; excess, 8 cents. Beginning October 1, 1937, new rates were

The trim lines of the Melrose, Minn., diesel electric plant stand out crisply in the snow.

Getting the Most Out of Shallow Wells

This industrial concern puts its wells four feet into the non-water bearing shale to utilize the aquifier most effectively.

By B. L. BAILIE
Plant Engineer
Hiram Walker and Sons, Inc.
Peoria, Ill.

OUR company, which uses large quantities of water for process production and cooling, has studied the subject of well installation and development extensively. Both our engineering and research departments have agreed that it is better to draw water from several different points for the following reasons: sometimes the character of the water may compel the abandonment of a well; or, due to the solidification of the formation resulting from sand and lime after long usage, which cannot be broken down entirely by acid treating, it may be found necessary or desirable to change the location.

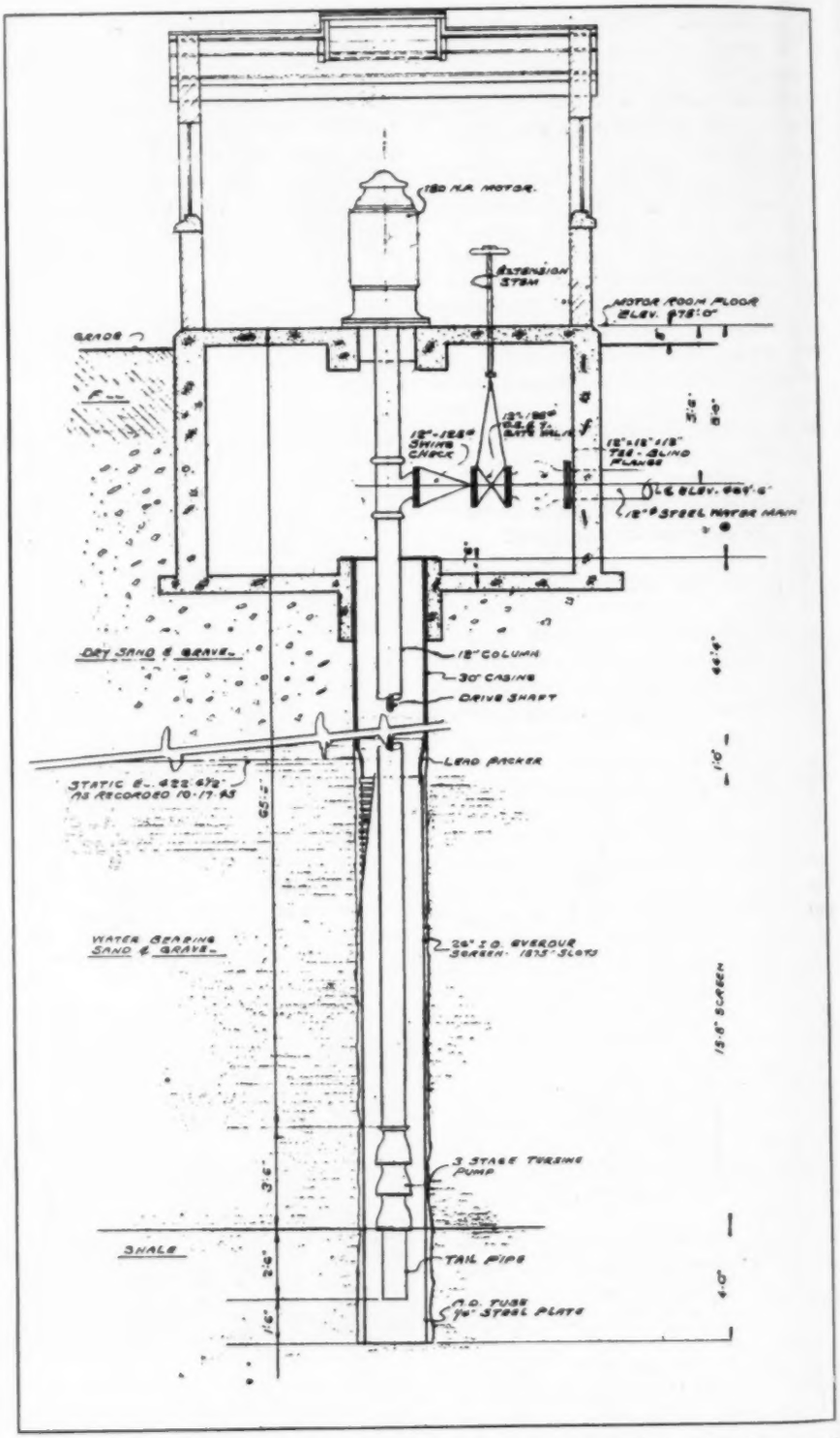
We have always made it a practice to attach a tail pipe to our pumps, setting the bottom of the tail pipe approximately 18 inches from the bottom of the well. Obviously, much of the water below the tail pipe contributed little to the supply. We therefore decided to take advantage of this volume of water by cutting into the shale stratum to a depth of at least four feet. The accompanying drawing shows the general arrangement of our new No. 7 well, which has been put into service recently with a steel suction pit four feet deep and 30 inches in diameter. This type of installation was discussed with our local well contractor and in turn with the screen manufacturer, with the hopes that we would accomplish better results, and provide for a flooded suction intake.

We believe a study of this table, which reveals the difference in drawdown on two pumps of similar characteristics, will prove our contention. Without question, No. 7 well is the best producing unit and produces at a more uniform rate with the least amount of drawdown. Needless to say, when our old wells fail and have to be relocated, we will follow the procedure outlined for we feel that we have solved one of the problems confronting those engaged in underground water pumping.

COMPARISON OF PRODUCTION OF WELL NO. 5 WHICH LACKS PIT WITH WELL NO. 7 *

	No. 5	No. 7
Depth	66.67′	70.0′
Elev. water, not pumping	47.0′	52.0′
Draw-down (ft.)	3.0′	1.0′
Production	1,400 gpm	1,500 gpm
Temp. of water in well	64° F.	57° F.
Grade elevation	472.0	474.4

* From a weekly report of the plant power engineer.



The general arrangement of one of the wells used by Hiram Walker. This has a steel suction pit four feet deep and thirty inches in diameter. A three-stage Pomona pump serves the well.

Principal Equipment
Municipal Electric Plant
Melrose, Minn.

Diesel engines: Two 300 hp, four-cylinder, 300 rpm Model 32-E-14; one 690 hp, six-cylinder, 300 rpm Model 33-D-14; one 1,400 hp, seven-cylinder, 300 rpm Model 33-F-16. All Fairbanks, Morse & Co.

Governors: Woodward Governor Company.

Generators: Two alternators of 250 kva each, with 7½kw belt-driven exciters; one alternator of 592 kva with 15-kw belt-driven exciter; one alternator of 1,225 kva with 20-kw belt-driven exciter. All Fairbanks, Morse & Co.

Switchboard: General Electric Co. Now being installed. Five generator panels, one blank, eight feeder panels, two voltage regulator panels, three totalizing panels, one swinging bracket for synchronizer.

Water pumps: Six motor-driven Fairbanks, Morse centrifugals.

Cooling towers: One Binks; two Fairbanks, Morse evaporative coolers.

Silencers: Three Fairbanks, Morse; one Maxim Silencer Co.

Air Filters: American Air Filter Company.

Air compressors: Two Fairbanks, Morse & Co. (3¾ x 4) No. 1834.

Fuel oil pumps: Two Fairbanks, Morse.

Auxiliary lubricating oil pumps: Two Fairbanks, Morse.

Fuel oil filters: Briggs Clarifier Co. Model 5-10-BR-S, in use, to be replaced by a Briggs D-1-O.

Fuel oil meters: Four Heresy Mfg. Co.

Recording thermometers: Twenty-seven; various makes.

Fuel oil purifier: One. Diesel Service Co.

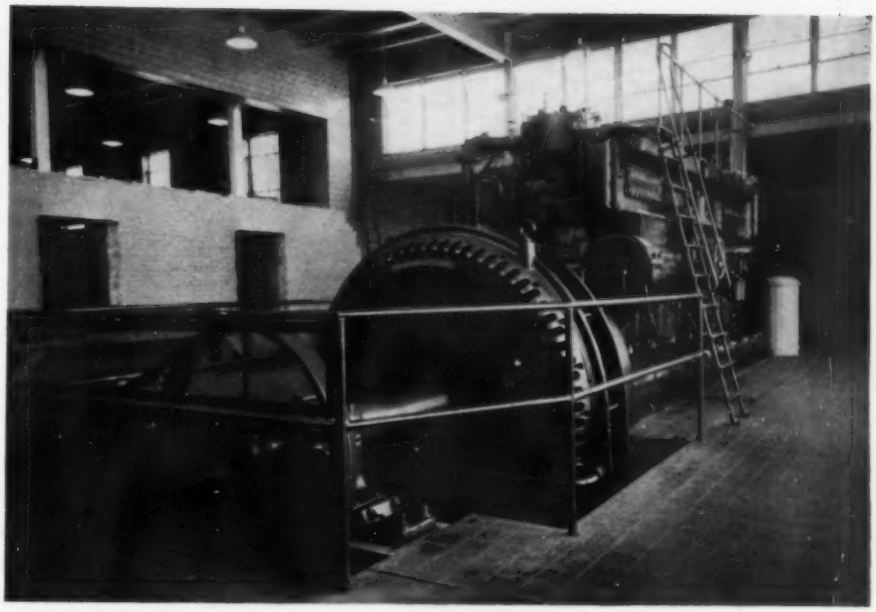
Distribution transformers: Three General Electric; two Westinghouse; one Line Matl. Co.

Distribution meters: General Electric Co. Eight now, twelve in new board.

Pressure filters: Four. W. W. Nugent & Co.

Levelometers: Five. Liquidometer Corporation.

Heat exchangers: Four water. Schutte & Koerting Co.



This 1,400-hp, 7-cylinder diesel constitutes the most recent reinforcement of the Melrose plant. The plant has in addition two 300-hp and one 670-hp engine-generator units.

put into effect, for different service schedules.

The residential schedule was: first 30 kwh, 8 cents; next 10, 7 cents; next 60, 3 cents; excess, 2 cents. That schedule has never been changed and is in effect today. There were 454 residential meters in 1945. There were 103 stoves and 43 electric hot water heaters.

For commercial lighting, the initial schedule was: first 100 kwh, 8 cents; next 50, 7 cents; next 50, 5 cents, excess, 4 cents. This remained unchanged until July of 1945 when this new schedule was set: first 30, 8 cents; next 50, 7 cents; next 50, 6 cents; next 50, 4 cents; excess, 3 cents. In 1945, there were 98 commercial lighting meters.

Power rates, to begin with, were as follows: first 100 kwh, 6 cents; next 100, 5 cents; next 300, 4 cents; excess, 3 cents. These rates continued until July 1943, when the commission was satisfied that lower rates for large consumptions were justified. The first three rates were retained, but new rates were set for consumptions above 500 kilowatt hours: next 500, 3 cents; next 2,000, 2 cents; next 2,000 1½ cents; excess, 1 cent. The number of power meters in 1945 was 58.

Another side of the picture is the free services given by the municipal plant. These include all water pumping for the community and lighting of streets, public schools and city hall. Actual cost of these services averages about $2,750 a year. In addition, special Christmas street lighting is supplied without charge, as is lighting for two public ice rinks, power for the town fire siren, and so on. In 1938 the plant bought a fire truck out of surplus earnings, at a cost of $2,843. While carried as protective equipment for plant property, the fire department, under council control, has the use of it for all fires.

Exhaust heat from hot water circulating through the engines is used to heat the plant building.

Of the plant's governing commission, U. C. Schlicht and Charles Hofman have served through the diesel period and had been on the steam-plant board as well. C. W. Carlson, the third member, is chairman. Ignatius Lemm, secretary, had served the old board in that capacity. He is also city clerk. Joseph Fern, plant superintendent, served through the entire steam-plant era and has kept right on.

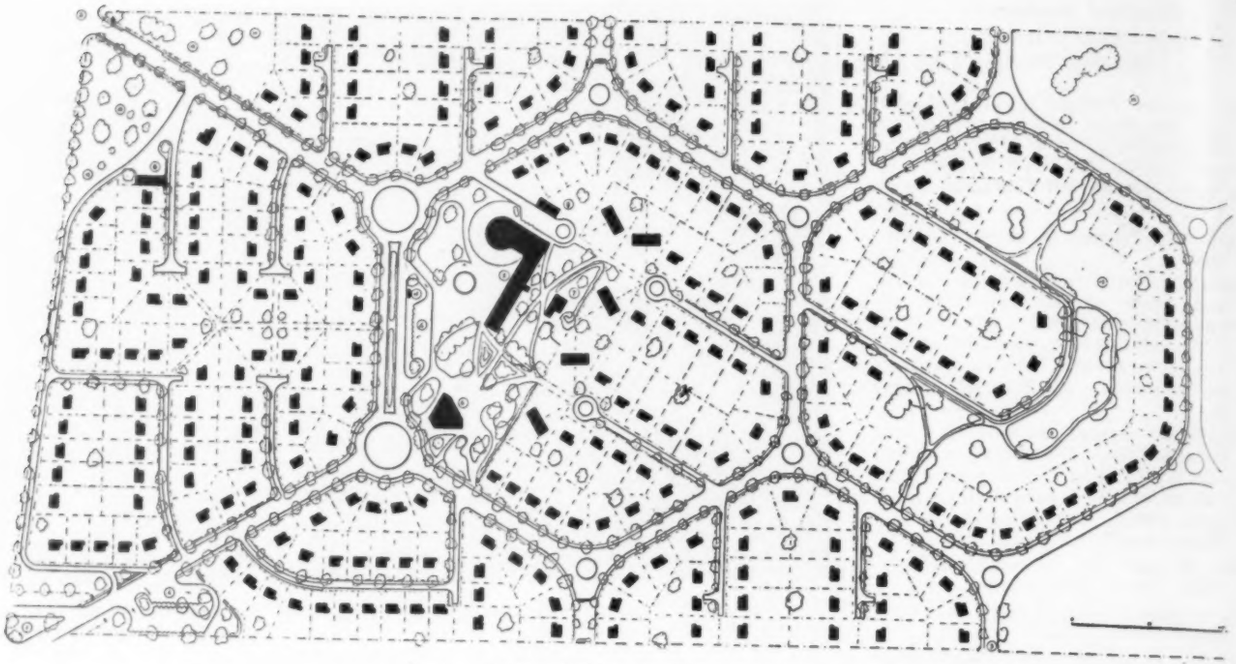
Standard Building Code for New Jersey Municipalities

UNDER Chapter 120 of the New Jersey laws of 1946, the Department of Economic Development of that state is instructed to prepare, through its Division of Planning and Engineering, a code to be known as the Standard Building Code of New Jersey. The Act specifies that:

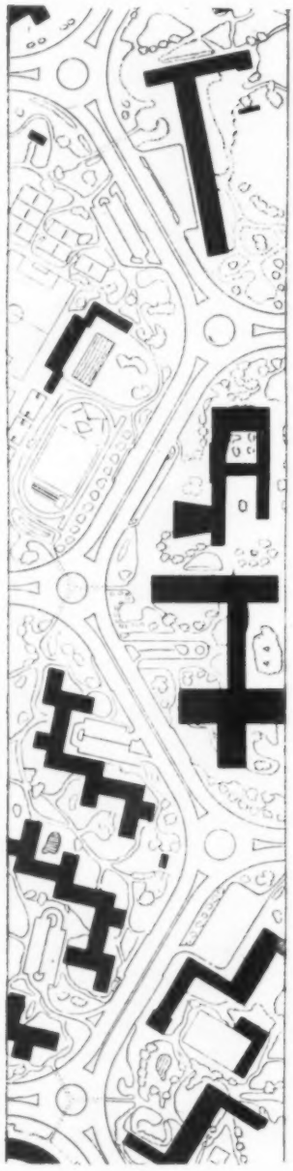
"The code, or the same as amended, shall regulate the design, construction, repair, alteration, demolition, and removal of buildings and structures of very kind within such municipalities as may adopt it and shall govern such counties, state boards, departments or other state agencies as may adopt it."

The various political subdivisions and agencies of the state are authorized to "adopt the code, and any amendments thereto, by ordinance, without incorporating the same in the ordinance; provided, reference is made therein to the code as the 'Standard Building Code of New Jersey' or, in the case of amendments, to the section numbers and dates."

Prior to enactment of this law, the Department of Economic Development was working on a draft of a proposed "Code of Minimum Construction Requirements for One-and-Two-Family Dwellings." This the Department has now issued in mimeographed form, under date of May 1, 1946, for constructive suggestion and criticism, as an important step in the preparation of the comprehensive code authorized by the legislature.



ABOVE: *A general plan showing the logical development of the hexagonal arrangement of the city.* LEFT: *How through traffic would flow with this plan.*



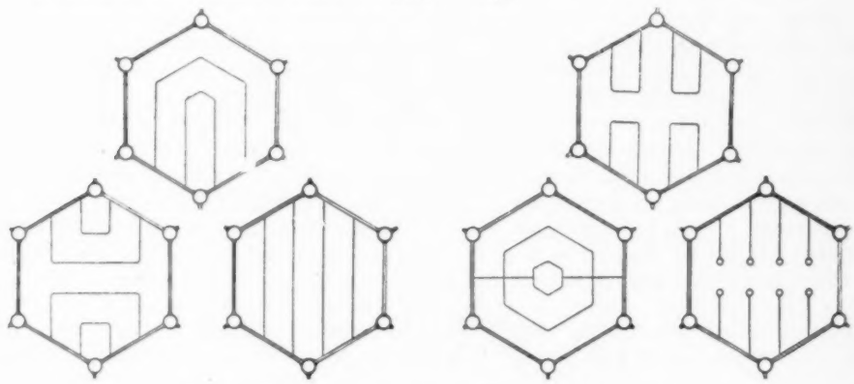
Beehive Layout for Cities

THE PLANS on this page are from "La Cuidad Hexagonal by Ricardo C. Humbert.* The author writes THE AMERICAN CITY that his concept of the hexagonal layout of cities is the outcome of his study of traffic roundabouts and their application to city planning. In order to facilitate the flow of traffic, he has devised intersections of three streets at 120 degree angles, and this principle, logically developed, leads to the hexagonal layout. (See also "A Study for a Modern Suburban Development," by B. Evan Parry, M.T.P.I.C., M.R.A.I.C. in THE AMERICAN CITY for August 1924. XXXI, page 146.)

According to Mr. Humbert's letter, he proposes general two-way traffic on the perimeter of each hexagon between the roundabouts at the vertices. With this arrangement, traffic moves in two of the three fundamental directions in succession to make a zigzag run as shown in the illustration at the left. Visibility is much better than that which is attained when streets intersect at right angles, and the turning radius is considerably greater.

A secondary network for local traffic with *culs de sac* and loops in the interior of each would form an "interior front," that is, activities that are usually carried on on the outside of the blocks in cities of the conventional pattern would be turned inward. Within the block, Mr. Humbert believes, everything should be within walking distance. Specialized hexagons (of 58 acres, 1,000 feet on a side, for example) would allow for family life. A primary school and a small commercial, cultural, and social center could be included.

* Published in Spanish by Editorial Vasca Ekin of Buenos Aires and available from Franz Feger, 70 Fifth Ave., N. Y., at $1.50 a copy.



Six possible street arrangements within a hexagon.

A Small City Weathers Its Second Sanitation Emergency

New water works and sewage treatment plant helped Jacksonville, N. C., through a critical period

WHEN the marines landed in Jacksonville, N. C., in 1942, the situation was definitely not well in hand in so far as sanitation facilities were concerned. This quiet little community of less than 800 prior to the outbreak of war, lying on the southern portion of North Carolina's Atlantic Coast and trying strictly to mind its own business, suddenly became overwhelmed with a combination of Marine Corps personnel and civilian construction workers building the marine base nearby. From 800 the population soared crazily to some 25,000 with local townspeople putting as many as ten people in a room on cots to care for this temporary emergency. W. B. Hurst, water and sewer superintendent, who at that time was also tax collector and police chief, says he still doesn't see how the community came through and retained its sanity.

Consulting Engineer W. F. Freeman, of High Point, N. C., who was retained for this project found it one of the most challenging to design that he has ever come in contact with despite its relatively small size. He had to design the work on an assumed population and on assumed locations around the old town. He consequently had to lay out proposed sub-divisions and service lines, both water and sewer, on private properties prior to the design of the work. He has had the satisfaction of seeing the town grow generally as he had anticipated and its ultimate population level off at the figure for which the plant capacities were designed.

This was not the first time that an emergency had arisen in Jacksonville's sanitation history. Before 1920 the community, then numbering 400 and without water or sewers, found itself face to face with a serious typhoid epidemic that threatened community health. The situation was so grave officials here recall, that the people seriously considered abandoning the town as too unhealthful for human habitation.

However, as a more practical and less panic-stricken alternative, the community voted $80,000 in bonds and built itself a water and sewer system. The water works consisted of a 60,000 gallon overhead storage tank 60 feet in height served by a 50-gpm pump and what developed into an artesian well. The supply from the ground was plentiful—about as much flowed away to waste as was used.

This worked satisfactorily until 1940. Careful operation and a good water rate had enabled the town to meet its bond obligation promptly and lay aside a little surplus. At that time, there was $20,000 in bonds outstanding and $18,000 in the bank to meet them. However, this margin was nothing when measured against the flood of demands for service that it now received.

However, the problem was just a bit bigger than the town itself. The federal government also had something of an intimate interest in the welfare of its Marine Corps and was determined that there be no behind-the-line difficulties if they could be prevented. Consequently, it sent engineers down to Jacksonville to review the situation and get ready to act.

Out of this came a new water supply system and a new sewage treatment plant plus facilities to collect garbage and refuse and equipment to maintain the streets.

Replacing the old 75,000 gallon overhead tank was a new R. D. Cole 200,000 gallon tank 100 feet high. This is served by two new 8-inch wells 180 feet deep equipped with a Deming 20-hp well pump capable of 350 gpm each against a 160-foot head. The water level in the well is about 10 feet below the surface.

To pump the water to the storage tank, the plant uses a 300 gpm, 600 gpm, or a 750 gpm Worthington pump. The two smaller units are powered by 15 and 30 hp GE motors, while the third uses a 60-hp Continental gasoline motor, thus insuring protection against power failure. A Wallace & Tiernan chlorinator gives the water a protective residual as it enters the distribution system, and a Simplex recording meter measures the flow through the plant.

The little sewage treatment plant became necessary when the volume of sewage grew large enough to create a pollution menace to the river that receives the sewage. Of particular im-

The operator examines the primary clarifier and the comminutor and grit chamber shown at the right. The anchors were built into the clarifier to hold it in place and counteract the effect of a high water table.

The plant utilizes the reliable trickling filter with fixed nozzles to furnish secondary treatment. In the background is the chlorine building, which supplies post-chlorination.

Two of the three Worthington distribution pumps. The one in the foreground is rated at 750 gpm and has a 60-hp Continental gasoline motor. The other is rated at 600 gpm and is electrically powered.

The water works plant draws its water from a Layne-Atlantic equipped well (right) and transfers it to the distribution system through a centrifugal pump (left).

portance was the fact that this pollution created a hazard to the shellfishing areas close by. Consequently, the degree of treatment is thorough.

When the sewage enters the plant it first passes through a small, hand-cleaned grit chamber that the operator cleans once a day. With a collecting system 25 years old, a great deal of sand infiltrates into the sewers which must be removed to make the plant operate efficiently.

The sewage then passes through a Chicago comminutor and a Dorr clarifier. A pair of piston-type sludge pumps transfer the sludge to the digestion tank where it remains for about three weeks and is then dewatered on a pair of 50- by 100-foot sand beds. The digestion tank, incidentally, is unheated and has a temporary wood cover since WPB would not release steel for a gas-holding floating cover. However, the climate here is warm enough so that digestion proceeds without the aid of heating coils.

The sewage from the clarifier is transferred through a 750- or a 500-gpm centrifugal pump to an Infilco siphon-type dosing chamber where it is intermittently discharged onto a 100- by 100-foot trickling filter. Post-chlorination constitutes the final treatment before the effluent goes to the New River.

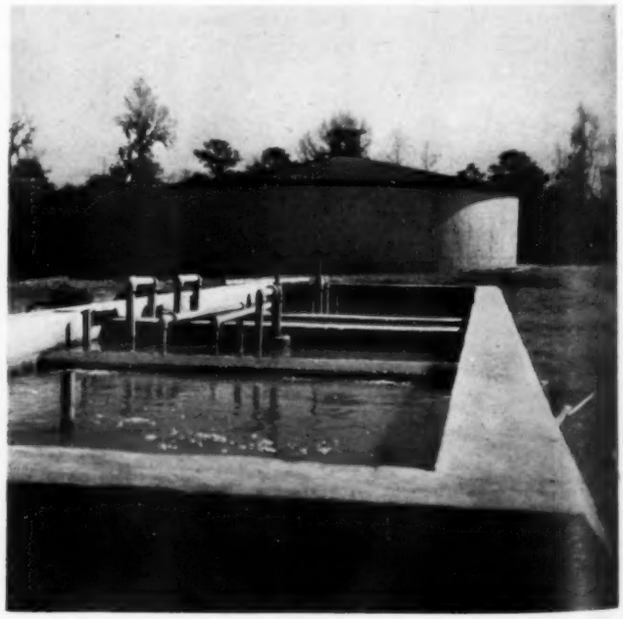
During the construction of the plant, the engineers had difficulty holding the clarifier in place because of the high ground water level that existed there. Consequently, to keep the tank from floating away, they tied it down with a pair of 25-foot anchors measuring 18 by 24 inches in cross-section, and laid onto the edge of the clarifier.

Garbage and refuse collection, Super-

(*Continued on page 137*)

LEFT: *This R. D. Cole water tower receives its supply from the pumping station shown in the foreground.*

BELOW: *An Infilco dosing siphon about ready to go into action. In the background is the digester which has a temporary wooden roof.*



Lighting Small Airports with Reflective Markers

By LESLIE C. VIPOND
Airport Lighting Engineer
Civil Aeronautics Administration

Piper Cub equipped with special lights used during the flight tests.

A LIMITED form of airport lighting recently tried appears to hold promise for use at small airports which cannot afford the initial cost and maintenance of standard permanent type lighting systems. This new form is the so-called reflective marker and portable floodlight trailer system.

At the Rochester, Minn., municipal airport, where the trial tests were held, a turf landing strip 100 feet wide by 2,000 feet long was outlined with reflective markers spaced at intervals of 100 feet along the sides and at intervals of 25 feet across the ends. Two 1,000-watt floodlights mounted on a portable engine-generator trailer were located out in the approach, 300 feet from one end of the strip. The floodlights were directed down the strip, and the markers picked up part of the light and reflected it to the pilot of the test plane coming in for a landing.

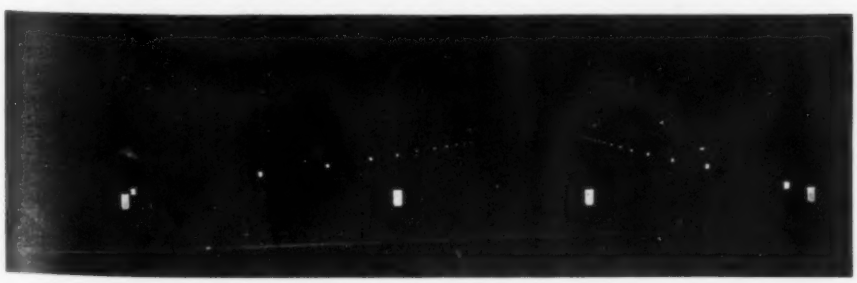
The reflective markers consist of a piece of steel wire bent in the form of an inverted "U," similar to a croquet wicket, and covered by a cloth envelope, the two outer faces of which are coated with "Scotchlite" reflecting material. Being flexible, these "wicket" type markers present no appreciable hazard to small aircraft and if struck by plane, auto, or mowing machine, can be quickly bent back into shape.

In the test flights, the plane was aimed for the bright spot of light cast by the floodlights, thus enabling the pilot to orient himself and make a good approach. As the plane approached the landing strip, the markers appeared dim and gray at first then blossomed into bright white squares of reflected light.

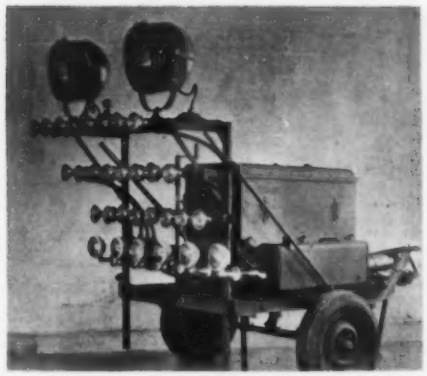
Numerous flight tests have demonstrated that, within certain limitations, successful night landings can be made at small fields with such a system. Using only the landing lights of a plane is not practicable; ground-mounted floodlights are necessary. Also, a plane must make a low approach over the floodlights to keep down the angle of divergence of the reflected light.

From a recent issue of *Aviation Maintenance*.

Daylight view of the 100-foot turf runway with reflective markers.



Night view of the runway outlined by the reflective markers as the pilot comes in to land.



Floodlight trailer with two 1,000-watt floodlights on top of frame.

Complete Rezoning Planned for Portland and Pittsburgh

PITTSBURGH, Pa., and Portland, Ore., are undertaking complete revisions of their zoning ordinances originally adopted nearly a quarter century ago.

The original Pittsburgh ordinance, covering use, height, and area, was approved in 1923 and has since been amended many times in an attempt to keep pace with modern zoning practice. The Planning Commission under the Chairmanship of Frederick Bigger realizes the need for a complete review and revamping of both the text and district map to bring the zoning regulations more in scale with actual land use and building requirements.

Portland's early zoning experience was unusual in that its first effort in 1920 to adopt a zoning ordinance prepared by the late Charles H. Cheney, became a matter of serious controversy and had to be subjected to a referendum. It was defeated by the slight majority of 30,631 to 30,085. Through the continued efforts of the Planning Commission and the cooperation of the Realty Board, a new ordinance was drawn and again submitted to the voters in 1923. Fortunately it was approved by a vote of 41,897 to 28,182, and this ordinance, which covered "use" only, is with some modification still in effect. There is much to be done to modernize the Portland ordinance, but work is now under way under the direction of Commissioner William A. Bowes, Department of Public Works and Glenn Stanton, President, City Planning Commission.

Earl O. Mills, Planning Consultant, of St. Louis, Mo., has been retained to aid in the redrafting of both the Pittsburgh and Portland ordinances.

Community Responsibility in the Housing Emergency

THE communities of this country, through their planning groups and officials, will decide whether the Veterans' Emergency Housing Program will be a blight or a blessing to them, Wilson W. Wyatt, National Housing Administrator and Expediter, told the American Society of Planning officials and the Citizens' Housing Council of New York at their joint conference in New York on May 8.

"If they jam their houses together on crowded streets without proper arrangements for light and air, if they fail to provide adequate health facilities, the eventual result will be slums and blighted areas," Mr. Wyatt said.

But if the communities plan intelligently, they will benefit permanently from the program in addition to meeting emergency needs.

Finding Sites for Veterans' Homes

"The veterans' housing program," Mr. Wyatt said, "means two years of accelerated building that will set the pace for ten years of rapid home construction. If planners take hold of the emergency program and do a good job, we will have well-planned housing from now on out. If we fail to plan well on the emergency program, we will have a decade of housing chaos."

The National Housing Agency, through the Federal Housing Administration, will see to it that the houses built under the program "are worth their cost under present conditions," but it will be up to the individual communities in which the homes are built to protect their future value by erecting them on desirable home sites, Mr. Wyatt said.

He cautioned against locating the homes in existing slum areas within cities or in outside areas lacking in utilities, schools, and other family necessities.

He urged amending city zoning ordinances, if necessary, to permit veterans' homes to be built in the most desirable residential districts. On this phase of the problem the Housing Expediter said:

"War Department surveys show that for most veterans the *top* price they feel they can afford for a house is $6,000 and the top rent is $50 a month. These figures present us with a challenge.

"We like to think of our best residential sections as homes for the middle income group. Actually aren't many of them really for a very small per cent of the population? None of us wants a glue factory in the midst of the town's nicest homes, but we should search our souls and reconsider the amount of land set aside in 'A' districts before we say as planners that it would lower our standards to permit veterans' homes in such neighborhoods even if it means that sizable groups of homes costing under $10,000 come into them.

"Our zoning must face up to the facts of incomes of American families and it must face forward to the new techniques that are going to provide houses of a new standard of soundness in patterns of lower cost, houses within the reach of many, including the *real* middle income group."

> ***The veterans' emergency housing program means two years of accelerated building that will set the pace for ten years of rapid home construction. If planners take hold of the emergency program and do a good job, we will have well-planned housing from now on out. If we fail to plan and plan well on the emergency program we will have a decade of housing chaos.***

For Prompt Action on the Wagner-Ellender-Taft Bill

Urging support of the Wagner-Ellender-Taft bill (S. 1592), which has passed the Senate and is now before the House,* Mr. Wyatt said:

"The Wagner-Ellender-Taft bill offers a variety of valuable tools all aimed at reducing the cost of housing and certainly one of the main headaches in the emergency program is keeping costs within reach of the veteran. We need all the help we can get on that.

"As planners you are interested in all of the provisions of the Wagner-Ellender-Taft bill, not only because they all add up to lower housing costs and to a high annual volume of new house construction over a long period, but especially because of the conditions and aids which assure that this housing will be built in accordance with sound standards for land use.

"This is reflected in the policy declared by the Congress that the welfare of the nation and living standards of its people require a production of residential construction and related community development sufficient to remedy the serious cumulative housing shortage, to eliminate slums and blighted areas, and to realize as soon as feasible the goal of a decent home and a suitable living environment for every American family. Toward the achievement of this objective the Wagner-Ellender-Taft bill provides for appropriations of twenty-five million dollars over a five-year period, to be available to local communities on a 50-50 matching basis for the making of studies of their housing needs and surveys and plans for housing and related community development, including, specifically, desirable patterns of land use and community growth.

"Likewise, to carry out these desirable objectives, the Wagner-Ellender-Taft bill provides for a program of federal aid to local communities for the assembly of land in slums and blighted areas and its clearance and preparation for redevelopment, in accordance with whatever use the local community determines to be the most appropriate. The essence of this plan is that federal and local aid will be combined to bring the cost of land acquisition, clearance and preparation for redevelopment down to a point where its re-use in accord with sound planning principles will be feasible.

"These offer every town a golden opportunity—the chance to clean out the slums and blighted areas which cost so much in money and in human misery.

"They offer a chance to start over with a clean slate. They give towns a chance to plan for the building that will follow the emergency program — to have new parks and airports and recreation areas or to return blighted land to good housing with space for light and air. They offer central cities a chance to counteract the trend to the suburbs and to avoid some of the headaches and troubles caused by this outward migration."

* See page 72 of this issue.

To Eliminate Sub-Standard Housing

A COMPREHENSIVE program for Chicago Building Department's newly created Bureau of Housing Inspection was proposed on May 3 by the Metropolitan Housing Council of Chicago.

The program, announced by Ferd Kramer, president of the Housing Council, is designed to improve housing conditions in general and to eliminate sub-standard housing through strict enforcement of health and safety ordinances. It calls for an "in-service training program for housing inspectors and supervisors; a block-by-block survey of blighted areas to be made continuously on a carefully planned basis; inspection of entire buildings where complaints or findings indicate such inspection to be advisable; establishment of a housing and building court; and an inspection-fee system for repeated sub-standard inspections."

Three immediate needs emphasized in the report and recommended to Paul Gerhardt, Jr., Building Commissioner, are for an adequate inspection staff, competent supervision, and strict performance standards.

The report has been published in a sixteen-page pamphlet, obtainable from the Metropolitan Housing Council at 69 West Washington Street, Chicago 2, Ill.

A Public Works Open House

On April 24 public works men from the New York metropolitan chapter of the American Public Works Association gathered at Englewood, N. J., and Ridgefield Park, N. J., to discuss how to operate various pieces of equipment used for municipal service.

TOP, LEFT TO RIGHT: *G. Russell Hartley, city engineer of Englewood, N. J.; retiring president of the Metropolitan Section of the American Public Works Association Allan Rogers, Garden City; and president-elect F. M. Galloway, supt. public works, Montclair, N. J.*

FIRST ROW LEFT: *A crowd watched the Elgin Eductor work.*

FIRST ROW RIGHT: *Irvington, N. J., demonstrated its new Gar Wood catch basin cleaner equipped with a Hayward orange-peel bucket. It features simplified operation with only two levers and a foot pedal.*

SECOND ROW LEFT: *The Gar Wood Load-Packer garbage trucks draw a lot of interest.*

SECOND ROW RIGHT: *The operator puts the Elgin sweeper through its paces.*

BOTTOM ROW LEFT: *This "leaf bulldozer" was a contribution of C. M. Pratt, director of public works, Leonia, N. J. It is constructed so that it can be attached to the yoke of a truck that receives a standard Baker snowplow.*

BOTTOM ROW RIGHT: *This is Ridgefield's popular homemade Leaf Hog. It uses a Lummus Cotton Gin blower and is patterned after the leaf sucker-upper made at Columbus, Ga.* *(see p. 13, THE AMERICAN CITY, March 1944)*. *James Marshall, superintendent of public works, made this unit last fall and shows the group how it operates.*

Columbus, Ga., Selects Soil-Cement Paving

A six-inch base with a two-inch wearing surface makes a low-cost street with good maintenance characteristics.

By J. M. GRADDY, Director
Department of Public Works
Columbus, Ga.

This is a typical street in Columbus where the soil-cement program is being used for improvements. Notice that it is residential in character, wide and attractively lined with trees.

THE FIRST time you try something, you can class it as an experiment, the second time, a test; but the third time you have to accept it as part of your continuing program. You can't hide behind any alibis any longer.

We find ourselves so committed in Columbus. In 1944 we "tried out" 14,000 square yards of soil-cement paving for use in certain residential streets and were encouraged by the results. So last year we "tested" a few more to the tune of about 12,000 yards. Now this year we are launching a program involving some 35,000 yards, and if you think that we have any illusions about convincing either our city manager, Marshall Morton, or any property owner that we feel that the soil-cement program is still in the try-out stage, you don't know what they expect of their public works department.

We are building these streets so that we can avoid the annual or biannual surface treating maintenance necessary on most low-cost jobs. Many low-cost street improvement programs require a seal coat every two or three years to keep the surface intact and to prevent traffic from destroying the base. These points, of course, are the two keys to any low-cost paving program. Water is the real enemy of most bases; and, of course, if the wearing surface goes, exposing the base, traffic can do a lot of damage that is hard to repair. The base is supposed to carry a load, not stand abrasion.

However, as any municipal official knows, engineering procedure has to be coordinated with city financing. The property owners meet the cost of the original construction through assessments, but the city pays for the seal coats or other maintenance out of the general fund. Thus, if a city builds many of these streets, it may find itself committed to a street maintenance program that will eat heavily into annual income.

Our program sidesteps this difficulty by thickening the wearing surface. We build a good solid 6-inch soil-cement base and protect it with a 2-inch bituminous armor coat instead of the customary ¾-inch. While this runs up the unit cost somewhat, it gives us a street that we believe will be maintenance-free for ten to fifteen years. Thus, the property owner is assessed for the full cost of the paving and at the same time gets an economically priced surfacing.

This coil-cement surfacing does not represent our only venture into low-cost paving. We have in the past "experimented" with a clay-gravel type of stabilized base and did not have too much success. And when a failure occurs in any piece of street paving your property owner gets wonderfully indignant. He has a far more personal interest in it than does the motorist on the highway. To date we have had no failures with soil-cement.

Our practice has been to mix cement with the pulverized soil in the

An Ariens rotary tiller pulverizes the soil after it has been scarified by a patrol grader.

When the pulverized soil has been mixed with cement and has received its allotment of moisture it is windrowed into place by this auto patrol preparatory to being compacted.

road-bed in quantities varying between 6 and 10%. The plastic index of the soil varies from 3 to 18 and its specific gravity stays close to 2.65. Our optimum moisture content varies from 9 to 12% of the dry weight; and the dry optimum unit weight which the contractor must reach lies somewhere between 117 and 131 pounds per cubic foot, depending upon the character of the soil. The contractor has had little or no difficulty in obtaining this density by maintaining careful control of water content and rolling with sheepsfoot rollers. He uses a set of Caterpillar patrol graders to bring the street to grade and produce the soil. He then pulverizes this soil with a rotary tiller and adds moisture and cement in the usual manner for this type of construction. The streets as a rule are 30 feet wide reinforced on each side with curb-and-gutter sections. These are 18 inches wide and are divided into 10-foot lengths. The curb-portion is 6 inches high to the gutter line or 12 inches to the base of the slab. We take advantage of the weather-resistant features of air-entraining cement in the construction of these curb-and-gutter sections, as we do for all concrete work.

The two-inch bituminous wearing suface is a modified Topeka pavement utilizing local sand and aggregate with 4½% bitumen for binder course and 6½% bitumen for top course. The contractor lays this in 9-foot widths with a Barber-Greene traveling paver.

One of the things that has impressed us about the soil-cement paving is the fact that increased cost of materials has not been reflected so noticeably in its cost. Where practically all other municipal construction has jumped as much as 50 to 100%, our street construction costs have held at an almost pre-war price. This is attributable in part to the fact that the soil-cement base requires a relatively small amount of purchased material. The water is supplied by the city and the soil is already on the street. The manipulation also can be controlled by the use of big, efficient pieces of equipment. To date our prices have varied as follows:

	Curb and Gutter	Soil Cement	Wearing Surface
1944 (14,000 yds.)	$0.97	$0.535	$0.80
1945 (12,000 yds.)	0.94	0.625	0.853
1946 (35,000 yds.)	1.00	0.64	0.845

One of the important considerations in the use of any low-cost paving is to know where to apply it. We have not gone so wholly all-out for soil-cement that we have excluded all other types. In a part of the city where traffic is exceptionally heavy we have called for the use of rigid portland cement pavement. However, we are taking advantage of many of the money-saving developments that have come to light during the war to keep the cost down. For example, we are pushing expansion joints as far apart as three hundred feet where we formerly thought thirty to sixty was about maximum. We are salting—in contraction joints at 15-foot intervals to control the movement of the slab and to keep the joints from opening any further than we can possibly help, thereby minimizing the intrusion of sand and dirt and by the same token reducing the amount of maintenance necessary. We have taken out all longitudinal steel and have retained only the dowel bars at each joint. We are curing the concrete with the Truscon membrane-type curing compound that does not stain the surface. We are using air-entraining portland cement to keep the concrete as weather resistant as possible, and are using a joint filler composed of cotton-seed hulls mixed with RC-1 asphalt at the rate of two to three pounds per gallon of bituminous material to keep the surface smooth riding.

The governing proportions that we use for portland-cement concrete pavement are 190 pounds of sand and 346 pounds of gravel for each bag of cement. We limit the water to 5¾ gallons per bag.

The improvement program also includes miscellaneous bits of sidewalk and driveway construction throughout the city. None of these is so large that it justifies mixing at the spot, so the contractor has been using a set of truck mixers to bring the concrete from a central plant.

We have two methods of making assessments for these improvements; either the *petition* plan or the *ordinance* plan. In the first, the property owner is charged for half the paving abutting his property; we set up a project only upon petition of a majority of the property owners in the area and give them a ten-year period to pay for the work if they desire it. The city pays for all paving in the intersections.

Under the *ordinance* plan, the property owner is assessed one-third the cost of the work, and the city initiates the program without a majority vote of the property owners. We use it in certain areas where we wish to connect key pieces of paving and where no petitions have yet been made.

In either case our assessments are limited to no more than 25% of the assessed tax value of the property, thereby eliminating the possibility of producing an inequitable assessment.

Our soil stabilization work is being performed by local contractors: one block of 780 square yards by Hardway Contracting Company, and 35,000 square yards by Hugh McMath Construction Company and the asphalt wearing surface by Finley Company.

J. M. Graddy, Director of Public Works, includes a certain amount of concrete in his street improvement program. Here he is inspecting sidewalk construction with Chick Dean, superintendent for the Hugh McMath Construction Co., of Columbus. The concrete is delivered to the job by Jaeger truck mixers.

Simplified Lubrication for Street Machinery

By K. L. HOLLISTER
Technical and Research Division
The Texas Company
New York 17, N. Y.

DURING the war nearly everybody operating machinery recognized not only the first importance of lubrication but also of best practice in lubrication as well. The cities especially took this lesson to heart. Owners of 170,000 trucks and tractors worth $400,000,000 and of at least $100,000,000 worth of street and road machinery and accustomed to purchasing about $65,000,000 worth of all this equipment a year, the municipalities went through the war with minimum replacements. Preventive maintenance was a "must."

Eight Basic Lubricants

The purpose of this article is to present a plan for lubricating practically all construction machinery with eight lubricants. Advances in development and manufacturing of lubricants have made this possible. The eight main products are:

SAE 30 Heavy Duty Engine Oil
SAE 90 Gear Oil
Light Mineral Oil
General Purpose Grease
Wheel Bearing Grease
Track Roller Lubricant
Open Gear Lubricant
Cable Lubricant

It is hardly necessary to enumerate the advantages of having only one engine oil, one gear lubricant, and one grease to apply. Economy, efficiency, and orderliness will take the place of confusion in the handling of lubricants all the way from the storehouse to the final application. Better lubrication of moving parts will result.

If only one unit is involved, the number of lubricants is not so important. But with a variety of equipment, if a large number of lubricants is supplied, there is a much greater chance of misapplication than if a few carefully selected lubricants are provided.

Heavy Duty Engine Oil—For gasoline and diesel engines heavy duty oils have been developed. These are fortified with additives which impart detergent and extreme pressure characteristics and inhibit oxidation. This results in cleaner engines, adequate bearing protection and freedom from scuffing of pistons and cylinders.

It is recommended that the heavy duty oil be restricted to engine crankcases and a lighter, less expensive mineral oil be adopted for general use. For engine crankcases at normal temperatures, manufacturers generally recommend either SAE 20, 30, or 40 oils. Actual tests show little difference in engine performance on the three grades.

Gear Oil—Many of the different types of gears, such as the ordinary spur or spiral-bevel, where rolling contact occurs between the gear teeth, can be satisfactorily lubricated with a straight mineral oil. However, where there is a sliding contact between the gear teeth faces, as in hypoid or worm gears, the lubricants should be fortified to prevent scoring under heavy loads. Since a variety of gears is found in construction machinery, to insure sufficient load carrying capacity for all types, extreme pressure gear oils are recommended. The additive used to impart this extra load carrying ability should not cause thickening, corrosion or sedimentation.

Light Mineral Oil—Since, for most general applications, an oil lighter than that used in the engine is preferred, it appears justified to use a light straight mineral oil wherever oil is required except in engines and gears.

General Purpose Grease—Greases are available which will withstand not only high temperatures but also the tendency to wash out, even in amphibious operations. Considerable simplification is achieved by using such a grease. With a general purpose grease it is not necessary to determine whether a particular grease fitting requires a chassis lubricant or a high temperature grease. The general purpose grease should be suitable for plain, ball, and roller bearings.

Heavy Grease for Bearings

Wheel Bearing Lubricant—A heavier grease is needed for wheel bearings and hand packed ball and roller bearings such as the clutch release and pilot bearings, which are subject to external heat.

Track Roller Lubricant—Track rollers and other parts of the Caterpillar type crawler mechanism require a lubricant which will be sufficiently fluid to flow through bearing passages and at the same time be sufficiently non-fluid to prevent leakage from worn bearings. This requires a special semi-fluid lubricant known generally as track roller lubricant, containing ingredients which impart stringiness to the lubricant.

Open Gear Lubricant—For open gears, and exposed sliding surfaces such as the dipper sticks of power shovels, a special lubricant should be used having exceptional adhesive and water resistance qualities. It should be heated to be sufficiently fluid to apply easily with a brush, or by pouring. Upon cooling, it should thicken sufficiently so that it will not drip or be thrown from the cable or gear teeth.

Cable Lubricant—A light adhesive lubricant which will penetrate, lubricating the individual strands and providing protection against rust.

Additional Lubricants—Special purpose lubricant will still be necessary for certain equipment such as:

Water pump grease for shaft sealed water pumps
Magneto grease for magnetos in hot locations
Car journal oil for waste packed car journal
Steam cylinder oil for steam engines
Form oil for concrete forms
Rust proof compound for equipment in storage
Block grease for open bearings
Rock drill lubricant for rock drills

Resistance to Flow

Classification of Oils and Greases—Although oils and greases have many important qualities, from a practical standpoint their resistance to flow is of greatest interest. This is what is referred to when we speak of oils as being "light" or "heavy" and greases as "soft" or "hard." It is important because it controls consumption or leakage, friction or drag and ease of pumping or handling. Technically the fluidity of an oil is indicated by its "viscosity" and the consistency of a grease by its "penetration."

The S.A.E.* classification for automotive oils is by number, according to viscosity; i.e., Motor Oils Nos. 10, 20, 30, 40, 50, 60 or 70; Gear Oils Nos. 80, 90, 140, or 250. The higher the number in the same series, the more viscous the oil.

Until recently there was no standard grease numbering system; now however, greases are classified uniformly by penetration, as N.L.G.I.† Nos. 1, 2, 3, 4, 5, or 6; again, the higher the number the harder the grease.

For classification purposes the viscosity and penetration are taken at

* Society of Automotive Engineers.
† National Lubricating Grease Institute.

(Continued on page 137)

Charleston, S. C., Builds a New Filter Plant

RAISING the present capacity of the filter plant from 15 to 22 mgd and constructing a new 20-mg pumping station constitute the coming years' water improvement program at Charleston, S. C. Contracts for all except the building have already been signed. Present plans contemplate equipping the filters with Wheeler underdrains and Roberts control equipment. The pumping station will have a total of six 10-mgd DeLaval centrifugal pumps; three will work against a 245-foot head to serve the high-service sections of the city, and three will pump against a 70-foot for the low-service portions.

The program also provides for the continuation of a 24-inch line laid during the war from the pumping plant to the Navy Yard by bringing this line from the plant into the downtown portion of the city. There are three of these 24-inch lines, two laid prior to the war and the third during 1942-43. This third line, to the Navy Yard was 30,500 feet long; all are of cement-lined cast iron.

History of Supply

This project is another important step in the development of Charleston's water supply. The first mains laid in the city were installed in 1880 and consisted of unprotected cast iron pipe now badly tuberculated. Originally the city drew on a well supply located in the heart of town and the mains were designed to radiate from it, decreasing in size as they left the plant. However, as time went on the supply proved inadequate and the city turned to nearby Goose Creek, installing tide gates to prevent salt-water intrusion. From this, they were able to produce in good years an average of 5½ mgd. However, in 1928 the city's demand rose to 5 mgd and a severe drought cut the supply to a point where it was touch and go as to whether it would be adequate. At that time the Water Supply Board selected a plan that had been originally recommended in 1853 and later recommended again in 1897 which consisted of drawing on the Edisto River, some 35 miles away. Consequently, in 1928 the city completed 5 miles of a diversion tunnel, driven through the marl, which tapped this supply, allowing the diverted water to flow the rest of the way by gravity along a creek bed. This took care of the demand. James Gibson, Manager and Engineer of the Water Department, and his staff of engineers knew that the supply could meet this demand without difficulty if the 5-mile tunnel could be driven the rest of the way into the city. He began one of the city's most interesting improvement projects at that time; one that has assured Charleston of a supply of water of excellent quality which should be ample for industrial and domestic purposes for many years to come. The line, completed in 1936, assures a supply of 80 mgd if necessary.

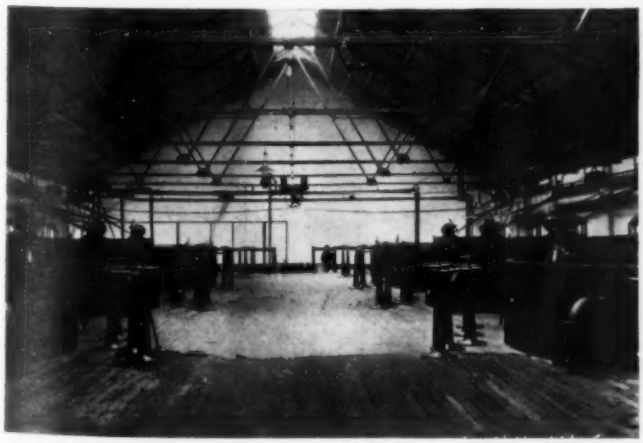
A number of engineers criticized the construction of this tunnel during its construction. The marl through which it was driven is a relatively soft stone, and some thought that the water would cause it to erode. However, this fear has not materialized. During the construction of the second portion of the tunnel engineers had an opportunity to examine the original 5 miles after 8 years of use, and discovered that even the marks on the walls remained clear and sharp. The tunnel is exceptionally tight. Infiltration amounts to less than ½ gallon per foot per day.

The entrance of the water supply tunnel heading. A riser was constructed at this point to facilitate the removal of excavated material. Note the sharpness of the marl edges even after six months of exposure to the air.

12-Inch Main Installed

Subsequent improvement to the system has been confined to extensions of the distribution system to care for Charleston's rapidly growing population. One of the more important of these consisted of a 12-inch main laid under the Ashley River to St. Andrews Parish development. The use of Molox mechanical joint couplings with the cast iron pipe facilitated the work.

Charleston's average war consumption of treated water has varied between 13½ and 14 mgd and there has been no noticeable let-up in this demand since the war's end. Although some of the industrial demand has dropped, the domestic consumers have reached a new high. The January 1946, demand of 13.8 mgd is about the same as it was during the peak of the war activity.

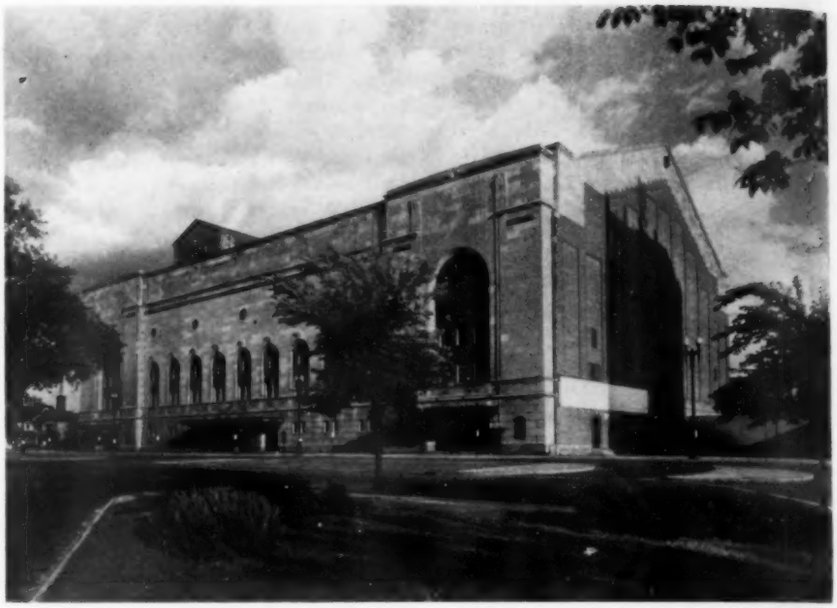


Charleston improves its filter plant approximately every twenty years. This is a picture of the filter plant in 1904. Notice the wood tub construction.

Here is a picture of Charleston's present plant put in in 1920. This plant uses the American Water Softener rectangular type filters with Wheeler bottoms.

Municipal Auditorium Serves Minneapolis Well

By RUDOLPH LEE
Manager, Municipal Research Bureau
Minneapolis, Minn.



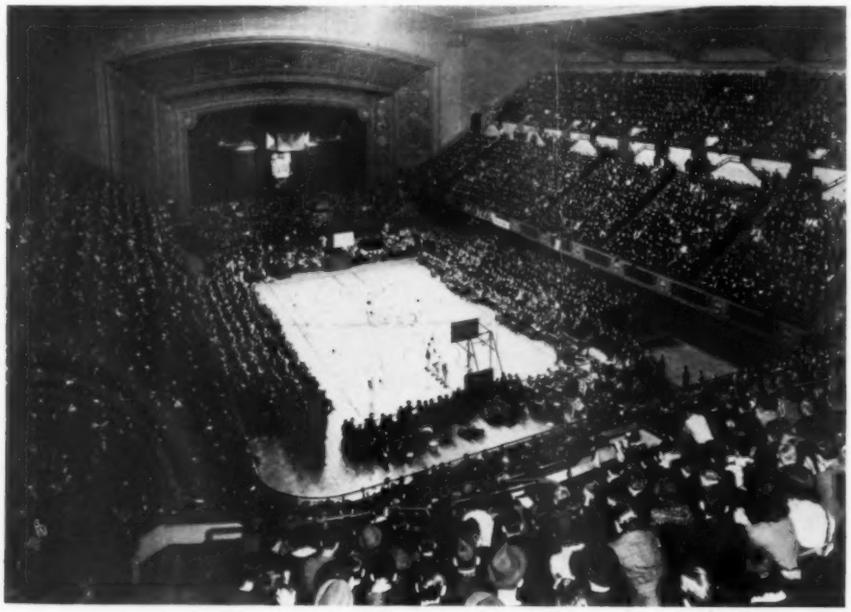
View of the entrance of the popular Minneapolis municipal auditorium.

ON THE evening of March 26, 1946, the Home Builders Show program at the Minneapolis municipal auditorium was halted to stage an interesting and colorful ceremony. The last bond of a $3,000,000 issue given in 1927 to finance the structure was burned, the debt having been paid.

Minneapolis citizens are proud of their municipal auditorium, one of the finest and most completely equipped in the country. They have made it a popular community center, the gathering place for public events, entertainments, and sports. It is in almost constant use. Since the auditorium was opened in 1927, there have been 3,040 attraction days with 4,275 performances attended by approximately 14,725,000 persons.

The auditorium was first discussed as early as 1916, but the project was abandoned because no definite agreement could be reached as to the type, site, cost, or method of financing. In 1917, the project was again discussed but action was delayed until 1922, when a Citizens' Committee composed of civic, commercial, and labor leaders recommended to the state legislature the passage of a bill authorizing the sale of $4,000,000 in bonds to cover the cost of the building and site. The legislature passed the bill, but reduced the amount to $3,000,000 with a referendum clause. The referendum was held on June 11, 1923, and carried by a vote of 69,505 to 25,111.

With the way thus cleared for the project, the architects were selected, the site purchased, and the general contract let. The building was completed June 1, 1927, at a cost of $3,150,000. Many alterations and improvements have been made during the last 19 years to keep the auditorium modern and to give the patrons more efficient service.



A record crowd watches the annual state basketball tournament in the auditorium.

Self-Sustaining Operation—Wide Diversity of Uses

Bonds that were issued for the auditorium were paid by a special tax levy. Operation of the enterprise, however, is self-sustaining. The operating expense in 1945, for instance, was $78,000 and the rentals totaled $82,000. There is no free use of the auditorium and rentals range from $250, to $450 per night, depending upon use. The auditorium is under the control of the city council and its auditorium committee. George Adams has been manager in charge since 1929.

The main auditorium will seat 9,500 persons, but audiences up to 13,000 have crowded into it. It has a stage 50 by 90 feet in size, with all the needed stage settings, and modern equipment. It has a $150,000 pipe organ and kitchens and a cafeteria capable of taking care of 1,000 persons at a time, and dinners have been served at which 3,000 persons were seated.

The auditorium is used for conventions, trade shows, concerts, lectures, church gatherings, sports events, circuses, political meetings, and dances. Its use and the conveniences it affords help to make Minneapolis the conven-

(Continued on page 137)

How Much Can a City Afford to Spend To Save Its Life?

By JACOB BAKER
Consultant on Management and Planning, Econometric Institute
New York City

This discussion is an exercise in propaganda — not in planning. It is the kind of statement that may interest the business community in any American city, the kind of statement that may make better planning both possible and realizable.

IT IS hard to say just what anything is worth. One has to consider how much it costs to replace a thing, the original cost of it, how much it has been used, how much use there is in it, its special advantages and disadvantages in the competitive market. With all of the uncertainties that are involved in computing how much a city is worth, guesswork must be used. Nevertheless, it is useful to the people of any city to consider from time to time the value of their city—its productive plant, the city institutions, and the purchasing power of the people who live in the area. When the computation is made even in the most conservative fashion, evidences of great values clearly worth saving are shown.

Let us use for an example a mid-continent American industrial city of about 100,000 population. Upon examination it is found that the production of the city is a fairly stable fraction of the total national production. Let's say that it is 0.3%.

The Physical Value of the City

Noting this relationship and basing the physical value on estimates of costs of reproduction and capitalization of earnings, and assuming there are 30,000 dwelling units in the city with an average value of $3,000 each, we can set down a table of attributable values of the physical plant of the city.

Next let us estimate the going business value of the city. We take a percentage of the national figure for the total of investment and entrepreneural return paralleling our city's share of the total national production. This gives us a figure of about $56,000,000 per year of which $12,500,000 is interest on the attributed value of plant described above, leaving $43,500,000 as the average going business profit of the area. This, if treated as an 8% return on its capital value, would project a capital valuation of $550,000,000. This sum is divided in varying amounts among the various groups of the population. The merchants, public utilities, and banks have a much greater share of it than the public employees, professional people, or industrial manufacturers.

Table I
ASSUMED CAPITAL VALUES

Manufacturing Plant	$150,000,000
Non-Manufacturing Plant	150,000,000
Dwelling Unit	90,000,000
Vacant Land	40,000,000
Public Property	110,000,000
Going Concern Value	570,000,000
Total	$1,100,000,000

Distribution of Ownership

Examining Table I with the intention of deciding how much of the total capital value should be attributed to each type of business enterprise, we note the following: Dwelling units are properly the concern of the people that own them. In our city one-third of the people own their own homes. Consequently, two-thirds of the dwelling-units figure may be said to be the concern of landlords and other investors. About one-third of the non-manufacturing plants and one-fifth of the manufacturing plants belong to landlords or investors who let the plants or buildings on rental. All vacant land belongs to them. On this basis one can estimate the total holdings of landlords and investors who receive fixed rent on industrial or other property. To this should be added a fraction of both public property and going concern value. The same kind of calculation is made for each of the other classes of ownership. The merchant has a bigger share in going concern value, a lesser share in real property. The banker's stake in the real property on which he loans on the one hand, and in the going concern value of the city on the other is about the same. The stake of public utilities, including railways and terminal facilities, is perhaps two-thirds on the side of going concern value and one-third on that of real property. The owner-operators of industrial plants have an equity which can be roughly determined in relationship to that equity held by creditors. By this process we can make the tentative distribution of ownership for our city shown in Table II.

There are a number of other ways to approach an estimate of the total capital value of a city. For example, the total figure can be divided up into per capita shares for each man, woman, and child in the area. Or the amount that the average annual earnings per family is greater than the average for the United States as the whole may be considered. Let's say there is $500 a year more for each worker's family in our city than in the country as a whole. If it were capitalized at a very conservative ratio of 1 to 10, it would mean every such family here has a capital advantage of $15,000 over the average family in the country as a whole.

In sum, the tangible and intangible values of our city are high and can be measured. In addition, it is possible to say how much of a stake each segment of the population has in the community. The tables and figures given here are obviously tentative. They are based on judgment. Judgments as to how their values should be assigned will vary, but, however they are assigned, the stake of every businessman and every worker, every adult and every child in our city area is real and high—high enough so that it will pay everybody to spend some money to safeguard it and increase it.

How to Lose Place

Make no mistake about it, cities of the United States can lose position. Cities of Asia have not only lost position, but have also lost their lives and exist only as ruins. Even in Western Europe with only 500 years of industrial history, there are cities once of great importance that have diminished to the status of overgrown villages, with actual loss of population, of property value, and of business activity. In the United States we have seen a number of cities of promise at the turn of the century that since then have just barely held population and volume of trade.

Vigorous activity of the Chamber of Commerce, the railroads, and the

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business enterprises of the city can certainly bring in some business, some new enterprises, some new products, and may increase the dollar value of manufactures. In the area, piece by piece improvement of housing will improve property values and may in the next forty years make it possible for the workers of our city to find as comfortable living conditions as they can find in other industrial centers. Step by step improvement of traffic facilities, recreation opportunities, of education, of public health control, may improve the business possibilities of the city and stimulate higher levels of business activity.

But the sum of all these actions will simply be that our city will be holding on, not to its present position, but to something a little bit better than its present volume. It may have as many more dollars but it will have a lesser share of the national whole.

Increasing the Share

To change for the better the relative position of any participant in competition, it is necessary to plan a course of action. Over the years there has been a tremendous quantity of planning, usually at points that were unseen. For example, a real estate subdivider talked very confidentially to an investor or a banker, and with an engineer on his staff, and has developed comprehensive plans for as large a subdivision as he could handle. This has been done without discussion with other subdividers. The full-blown plans have been presented to the people as finished things.

The same thing was true of the manufacturer who came to the conclusion that he had found an excellent site close to labor supply and transportation facilities that fitted his own purposes perfectly. He developed his plans, acquired the property, frequently anonymously through an agent, and went ahead regardless of the fact that in doing so he might intrude upon the plans for quiet residence or commercial development that many other people had in mind.

Our city has had a great deal of planning. Every location of an industrial plant, every railroad survey or development of a river, and development of a business enterprise here was planned with the skill of industrial pioneers. Not only were they skillful plans but they were big plans —just as big as the imaginations of the men who made them.

What was wrong with them? A very simple thing. They were made in secret, they were made competitively, and they did not fit together. And

Table II

TENTATIVE DISTRIBUTION OF OWNERSHIP

	Property Value	Share of Public Property	Share of Going Concern	Total Share
Landlord-Investors	$190,000,000	$35,000,000	$60,000,000	$285,000,000
Merchants	50,000,000	15,000,000	250,000,000	315,000,000
Bankers	50,000,000	12,500,000	70,000,000	132,500,000
Utilities	55,000,000	25,000,000	150,000,000	230,000,000
Owner-Operators	45,000,000	12,500,000	30,000,000	87,500,000
Home Owners	30,000,000	10,000,000	10,000,000	50,000,000
Total	$420,000,000	$110,000,000	$570,000,000	$1,100,000,000

the old habits persist. Every city in America is overrun with rumors of this or that secret plan, this or that secret intention—to close, to expand, to move away, to build, to take any of a number of possible courses—and to do it without knowledge of or regard to all the other secret plans of the community.

So what is needed? Again a very simple but a very difficult thing—a bigger set of plans, not secret, not competitive, and carefully fitted together.

Only by action based on the unified judgment of the community, supported with effort and with money—adequate money—can any city area secure its full share of national production, national income, and national wealth. If this discussion should serve to generate the beginning of that kind of action, it would be one of the most important documents ever produced in the planning field. Probably it cannot do that. Probably there is no possibility of persuading the various conflicting interests to reconcile their divergent and contradictory viewpoints to make possible unified action in any American city. However, the stakes are so high that any effort, no matter how great, is well worth making.

Solutions of fundamental social and economic problems are apt to be simpler than detailed applications and improvements. The intention here is to deal only with the fundamental needs of our area.

An Analogy from Farming

Maybe this oversimplifies the matter, but if the reader will follow along, we may get to something useful. Let us consider the situation of a $50,000 farm of 200 acres with some diversity of topography and several products. The farmer wants to get the most that he can out of that land every year. Every skilled farmer knows, however, that he cannot do that year after year and maintain the fertility of his soil, so he plans his production in a balance of exploitation and improvement.

Even with balanced production, however, he finds that there are other external problems that beset him. As gullies grow deeper and the soil on the high knolls gradually washes and blows away, he has to take steps to protect his land from erosion. Then the lower forty down next the creek is wet and acid. It would be more productive if it were drained. Too, the creek is cutting into a corner of one of his best fields.

So what does the farmer do?

He has three courses. He can mine the soil for all he can get out of it and hope it will be enough to give him a sufficient surplus so that he can migrate to Los Angeles and live in retirement.

Or he can undertake a piecemeal program of protection—one year a dike across a gully; the next year a little contour plowing; eventually some drains in the lower forty.

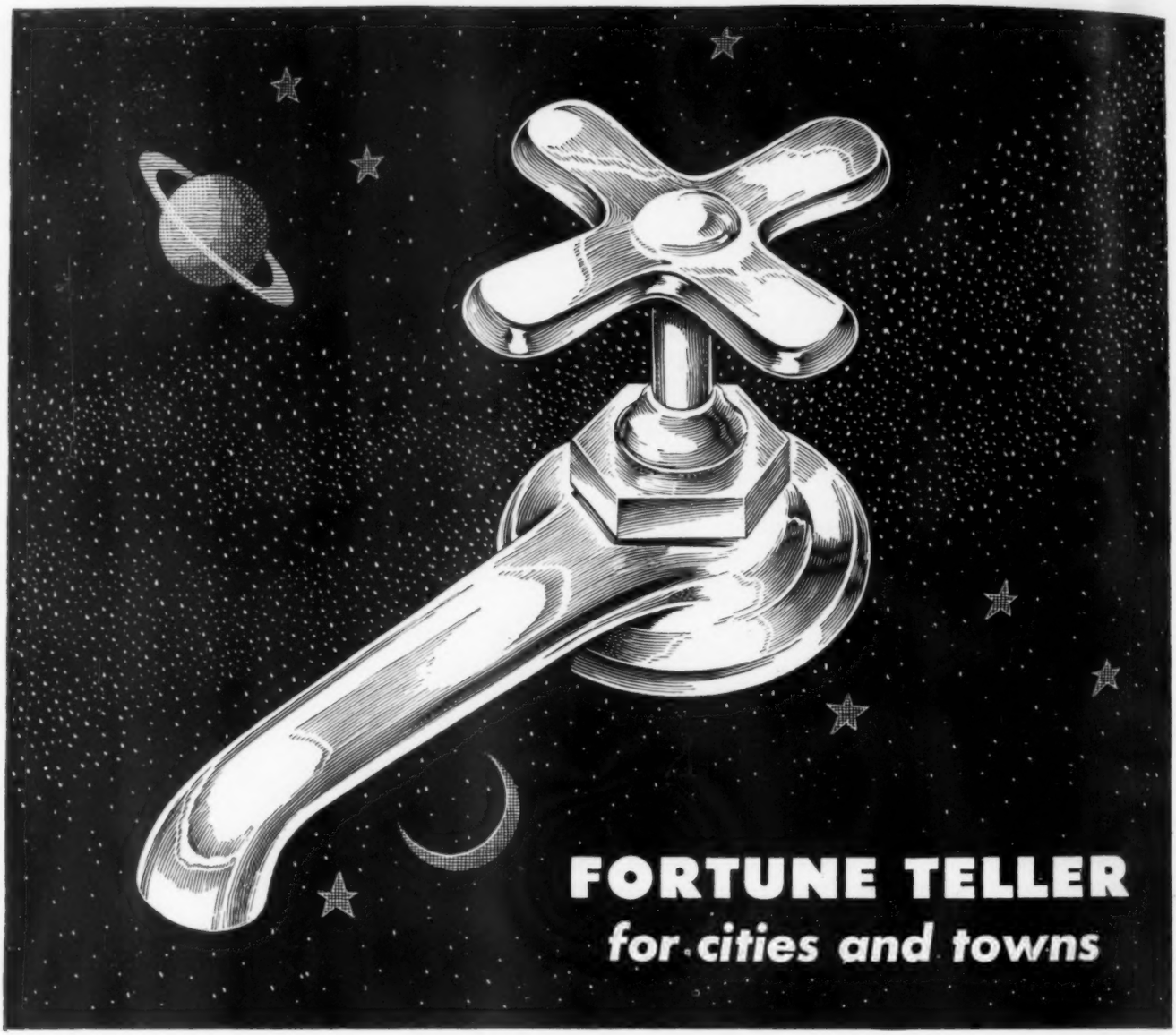
A livelier, progressive, well-trained young farmer of this generation would follow neither of these courses. If his farm is worth $50,000, he will feel that he is justified in spending 5 or 10% of the capital value to increase the fertility, maintain his soil, and increase his productivity. He will even borrow money and in the long run he will come out ahead of the farmer who follows the other courses.

What can he afford to borrow?

The farmer looking at his $50,000 farm would certainly say that he could afford up to 10% of his capital value to safeguard his investment. The country banker would probably tell him that he could afford up to 20% if he safeguarded his investment and improved his production. As a matter of fact, insurance companies and the farm loan organizations would go up to 50% without much question. By the same token the people of our industrial area can certainly expend large sums of money if they have reasonable assurance that the expenditure will safeguard the economic position of our city and increase dollar returns on investments in it.

What Can Our City Afford?

At the beginning of this paper I discussed briefly several rule-of-thumb ways of deciding upon the capital value of all the property and enter-



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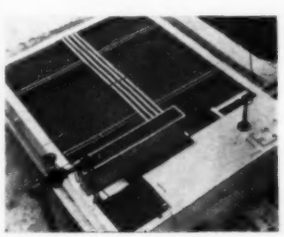

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prise in an industrial area. The calculation indicated that a fair valuation of this city of 100,000 population is $1,100,000,000. Reduce that by $300,000,000 because future prospects are uncertain. What would a farmer with such an $800,000,000 farm be justified in expending to safeguard his investment and increase his production? Certainly 10% of its capital value.

Of course the farmer, if he is intelligent, would want to make sure that he was going to make adequate earnings on every dollar of additional capital expenditure paid out. He would have to do so to be able to pay off the bank and cover depreciation on the investment and finally have the additional wealth free and clear. Can your city do as well as this theoretical farmer? If so, it can expend any total for capital expenditure upon which a return can be confidently expected and which can be planned to assure that return. It can thus expend upon this kind of investment up to 80 million dollars, even more if necessary.

It is always difficult to say what a man can afford to spend to save his life. Our city, which produces 0.3% of the total national production has in the last four years had a 0.3% share in a $200,000,000,000 national expenditure to save its life. That amounts to $600,000,000. Of that $600,000,000 perhaps $20,000,000 has gone into permanent improvements and plants in the area. The rest of it was shipped abroad, sunk in the sea, or broken into metal scrap in Africa, Asia, Europe. But our city did lay out $600,000,000 as part of the urgent task of saving its life in war. It can afford 1/8 of that to save its life in peace.

It would be ironical if it should turn out that the cities that were destroyed in the holocaust of war become the good cities for men to live and work in. Of course a city must make whatever war expenditures are necessary to retain life itself, but it should be better able to afford peace expenditures than war expenditures, because peacetime expenditures create wealth and human values, while wartime expenditures aim to prevent their destruction. Expenditures that *need* to be made are wealth producing. None should be made unless they have the probability of a 6% or 7% return, either for themselves alone or in conjunction with others.

If these expenditures are made, they must solve fundamental problems. They must certainly increase wealth. And they must maintain or improve our city's position and share in the national economy.

A program for our city designed with the intention of improving its place in the nation may include a great many major projects. The development of the program itself will put each project in its place both as to time and the money that should be spent on it. Essentially what is needed is a *program*, not a list of needs—a *plan*, not an aggregation of projects.

On our hypothetical farm there would be no use in calculating improvement costs unless the farmer saw the need of improvements and, more importantly, wanted to make them. So it is with this city of ours.

Calculation of dollar costs will not be too difficult, but it is not worth making unless the will to do the jobs that need to be done exists.

As a living industrial community, our city can justify these jobs only if the business men and the people who work for them, the political officials and the people who vote for them, and the merchants and the people who trade with them, want them done. The equipment is at hand, if the will to use it is to be found.

Is Urban Redevelopment Possible Under Existing Legislation?

ON OPINION that "urban redevelopment, in the limited sense in which the term has habitually been used, is practically impossible today under *any* legislation in most cities and is likely to be extremely difficult on any substantial scale for many years to come," was voiced at the annual conference of the American Society of Planning Officials, in New York, on May 8, by Catherine Bauer, of the Department of Regional Planning, Harvard University.

Instead of any great progress in the near future in the redevelopment of the slums and blighted areas of our cities, Miss Bauer anticipates the building within the next five years of some 6,000,000 new non-farm homes—homes for one-sixth of our population—practically all on outlying land, probably the vast majority outside the big cities entirely.

Here is the concluding section of this challenging talk:*

Where Shall These Houses Go?

The whole shape and quality and efficiency of urban environment for a generation to come is about to be set. Will the results of this boom merely add to the areas of "potential blight?" Where *do* we want these houses to go? In another ragged, formless fringe graying the last remaining open country in our metropolitan areas? Or in planned community units with breathing space between? Will the relation between living and work places become more chaotic and wasteful than ever, the traffic and transportation problem still more insoluble? Or shall we try to organize the outward flood into a sensible pattern of satellite towns, each with varied residence, business, and industry? What standards of community design do we want? Must we continue that fearful trend toward segregated one-class, one-type, one-use, one-race ant-heaps which we sometimes have the nerve to call "planned neighborhoods"?

And assuming we have some positive preferences in these matters, *how* can we put them into effect? Are we, in fact, much better off than we were ten years ago—or even after the last war—with respect to the guidance and control of outlying development? We've gone to great trouble to put 25 so-called urban redevelopment laws through state legislatures. Is there even one of them that can help us in this emergency?

There are, to be sure, about six words in Title VI of the Wagner-Ellender-Taft bill (S.1592) which, if they survive the House, might offer a loophole for land acquisition in unbuilt areas—but I do not believe these words are matched in a single piece of state enabling legislation.

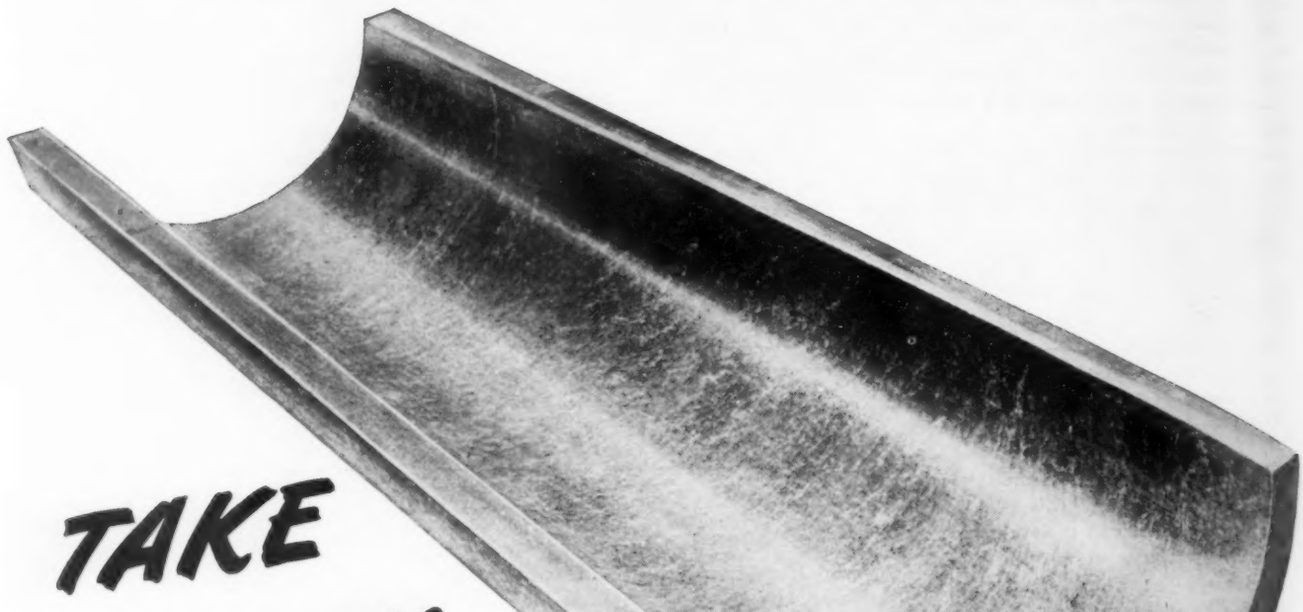
Essential Needs in Redevelopment

All this merely dramatizes that last illusion inherent in all the connotations of the phrase "Urban Redevelopment"—the notion that it can really be done on a town-by-town basis by dealing solely with blighted areas as such. If we had been thinking of urban redevelopment in dynamic terms—population movements, density, the quantity and quality of new homes, class and race relations, community and regional integration—and not just in terms of a lot of unpleasant old buildings, declining values and tax rates (the "city beautiful" fallacy in reverse)—we should never have thus deceived ourselves. Even the simple question of providing shelter for displaced families, to permit demolition later, should have ben enough to make us think in terms of the whole region.

What we need, of course, is representative regional government with a unified and effective land-use policy. It's too late for that in this boom, but surely this is the time, if ever, to take some step in that direction, to help people to begin to think of themselves as citizens of the whole area. Instead, we urge them to "save" this or that segment—at the expense of the rest.

Much of what we've been doing these past years—planners and housers alike—sounded like Planning. Actually it was little more than timid opportunism. We would have been stronger now had we been bolder, more idealistic, yes, even more visionary. Democracy does not, alas, absolve the experts from the responsibilities of leadership.

* Mimeographed copies available free from the author, 14 Farwell Place, Cambridge, Mass.



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Smaller treatment plants—Possible because Transite minimizes infiltration. Where new plants are being designed, substantial savings in initial cost may be effected.

Further details on Transite Sewer Pipe for gravity lines are given in brochure TR 21-A; on Transite Pressure Pipe for force mains and water lines, in brochure TR 11-A. Write Johns-Manville, Box 290, New York 16, N. Y.

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Zoning and Planning Notes

Edited by FRANK B. WILLIAMS
Author of *The Law of City Planning and Zoning*

Removal of Top Soil in Residential District—Constitutionality in Massachusetts of Zoning Vacant Land—Esthetics

MASSACHUSETTS—*Town of Berlington* v. *Dunn*, Supreme Court, May 7, 1945, reported in 61 N. E. 2d, page 243.

The defendant Dunn is the owner of vacant land in a residential zoning district in which the removal of top soil, or loam, is forbidden.

Dunn claims that the by-law is invalid because Art. 60 of the Amendments to the Constitution of the State of Massachusetts, which authorizes zoning in that state, does not apply to vacant land. But it does not follow that such lands cannot be regulated to a reasonable extent and in a reasonable manner for the promotion of the public health, safety, morals or welfare. This possibility, quite apart from Art. 60, was in effect recognized in one of the earliest judicial expressions on the subject in the *opinion of the Justices*, 234 Mass. 507, before the first zoning statute in Massachusetts was passed, and the constitutionality of zoning statutes, held valid under the federal constitution and in many states, does not depend in Massachusetts upon Art. 60 or upon any equivalent express constitutional provision.

The statute now in force in Massachusetts authorizes a municipality to regulate the use of land as well as the construction and use of buildings thereon, for the promotion of "health, safety, convenience, morals or welfare of its inhabitants"; and the by-law in question by its terms applies to the use of vacant land. The question now is the familiar one whether in its effect upon the property in question the by-law is reasonable.

In the opinion of the court, as applied to this town within commuting distance of Boston, the by-law is reasonable. The stripping of the top soil from the land is not only likely to produce disagreeable noise and dust but also destroys the soil for agricultural use and commonly leaves the land almost valueless for any purpose. The effect of such an unsightly waste can hardly be otherwise than permanently to depress values of other lands in the vicinity and to render them less valuable for houses. If this process should be repeated upon street after street, the cumulative effect might well become disastrous. The town must continue to maintain roads and public services past such blighted areas in spite of the fact that taxable values are destroyed and development restricted. All this concerns the public welfare in a constitutional sense.

Esthetic considerations are in themselves entitled to some weight.

Nor has any peculiar hardship been shown to defendant Dunn. It has not been established that the stripping of the land is the only profitable use to which the land can be put. In any event this consideration must not be decisive, as it is no more serious than in the case of many zoning by-laws forbidding non-residential use in residential districts.

Zoning of Vacant Land

EDITOR'S NOTE.—In this case the Supreme Court of Massachusetts, one of the ablest courts in this country, affirms two fundamental principles of zoning—that zoning is based upon what may be called the common law police power, which may therefore be invoked for zoning without constitutional amendment, and that zoning is a regulation of land, and may be employed in restricting the use of vacant land, apart from buildings and other structures.

The need of the police power in the imposition, for the common good, of restrictions which are widespread, equal for all in the same situation, and not unduly burdensome upon any, is evident. Of this zoning itself is one of the best illustrations. The only alternative to the use of the police power in zoning is the employment of eminent domain for that purpose; but to calculate and collect or pay damages or benefits for all the numerous and varied zoning restrictions, over the wide area of an entire city, not once, but every time a zoning ordinance is amended, and then assess the entire cost back again upon the same property, is absurd; as is shown by the fact that in the few states in which eminent domain zoning was tried, it was soon abandoned and police power zoning substituted in its place. Unquestionably the use of the police power in zoning is essential; without it, there would be no zoning.

Inherent also in zoning is the principle that it is a regulation of the use of land. Building on land is a use of land, and not only so-called use but also height and area restrictions are use regulations. These regulations persist when the building on the land at the time these restrictions were applied disappears and another takes its place, the restrictions applying to it as fully as to the original building. And land upon which there is no building may and should be zoned, in many cases, such as its use for outdoor parking, lumber, stone, or junk yards, upon which there may be no buildings.

In Massachusetts there was formerly enough doubt as to the validity of police power zoning to cause the passage of a constitutional amendment authorizing zoning in that state. This amendment, perhaps because of a feeling among the farmers that otherwise zoning might in some way interfere with agriculture, did not provide for the regulation of land but only of "buildings and structures." If, therefore, the zoning of vacant land, not authorized by the constitution, is valid in Massachusetts, it must be because the common law police power in that state is a sufficient basis for zoning in its entirety, including the zoning of land.

In the Supreme Court of the United States and in the courts of all the states in this country except three—Georgia, New Jersey and, as we have seen, Massachusetts—the validity of zoning without constitutional amendment has long been recognized. In Georgia the amendment provides for "zoning"; and, if properly interpreted, includes zoning of vacant land. As yet, however, there are no decisions in Georgia on this point. In New Jersey, however, as in Massachusetts, the amendment does not mention land, but only "buildings and structures"; and the cases, all in the lower courts, have ruled that apart from the amendment there can be no zoning in New Jersey, and under the amendment land, apart from buildings and structures, cannot be so regulated. *City of Newark* v. *Lippman*, 13 N. J. Misc. 248 and cases cited. *Meininger* v. *Borough of Metuchen* (N. J.) 46 Atl. 2d, page 450.

On this point the higher courts in New Jersey are still to be heard from.

Keeping of Pigeons as a Pastime in Residential District

NEW YORK—*Hoffman* v. *Murdock*, Supreme Court, July 24, 1945, reported in 56 N. Y. S. 2d, page 753.

This is a proceeding in which Hoffman seeks to review the decision of the Board of Standards and Appeals limiting the number of pigeons which he can keep on the roof of his two-family house, located in a residential zoning district in the city of New York. The pigeons were kept by Hoffman for his amusement and not as a business. The number kept by him would seem to be between thirty and fifty. The Board limited Hoffman to fifteen pigeons, to be confined at all times within a coop, saying:

"The Zoning Resolution must be considered as controlling the use. Under it, if the keeping of pigeons is carried on as a business, it would definitely be unlawful in a residence use district. As an accessory use, the keeping of domestic animals within reason is permitted, but should not be permitted in such numbers as will be deemed tantamount to a business use or where a larger number, and consequently greater noise and dirt, is not in harmony with the beneficial protection which a residence use affords. Proximity of neighbors' dwellings emphasizes the problem. We are dealing with a city, not a suburban condition, where dwellings are generally spaced not far apart. . . .

"In arriving at this conclusion [limiting the number of pigeons to fifteen and directing that they be confined within the coop at all times and not be allowed at large] the Committee recognizes that not to permit the pigeons freedom of flight will be an unsatisfactory condition to the owner. . . . If this is a controlling desire, the solution is simple—he can locate within a business use area."

But, the court says, this solution loses sight of the fact that neither the zoning resolution nor any other provision of law prohibits the keeping of pigeons as a pastime on the roof of a house in a residential zoning district. Hoffman, therefore, is not obliged to locate in another district, nor can the Board impose any condition upon him in the keeping of his pigeons where he is.

Original Woodcut by Lynd Ward

When this tree was a sapling, more than a century ago, foundrymen cast gray iron into pipe which is still in service. Their methods were primitive compared with the highly developed production techniques by which U. S. Pipe is made today. And yet, because of the service records of their product, the estimated useful life of cast iron pipe has been steadily revised upward. Cast iron pipe combines in one material all the qualities required for long-lived service—strength, toughness and inherent high resistance to corrosion.

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Federal Aid Announced for Urban Highways

ANOTHER allotment of $125,000,000 has been earmarked for highway construction in urban areas, according to a recent announcement of the Federal Works Agency. This constitutes a part of the second apportionment from the $1,500,000,000 fund authorized by the Federal-Aid Highway Act of 1944 to assist the states in developing a three-billion dollar highway program. The funds are to be administered in cooperation with the state highway departments. That designated for urban construction will be apportioned in proportion to the population of the urban places of 5,000 or more.

Borough Secretary for Fifty Years

OVER 250 residents of Kennett Square, Pa., and nearby areas gathered at the American Legion Auditorium on May 6 to honor William E. Voorhees at a testimonial dinner. On that date, Mr. Voorhees completed service of fifty years in the office of Borough Secretary of Kennett Square. He has also served as tax collector for the borough since 1927; and as a justice of the peace since 1923.

For more than half a century Mr. Voorhees has to an unusual degree combined a successful business career with civic posts and offices of trust. Coming to Kennett Square in 1887 at the age of seventeen, he took a position as correspondence clerk with the American Road Machine Co., and was eventually promoted to secretary of that concern.

Mr. Voorhees has been president of the Kennett Fire Company since 1905; for a number of years was a director of the Bayard Taylor Memorial Library; has served as a director of the Building and Loan Association of Kennett Square since 1900, and is now its vice-president; has been a trustee of the First Baptist Church for several years; and has served as secretary of the Kennett Square Golf and Country Club since its organization in 1923.

His special wartime services have included membership on the Kennett War Price and Rationing Board.

Lebanon Authority to Build Water Improvement

THE CITY of Lebanon, Pa., revived a ten-year-old municipal "authority" to make the financing of its new water improvement easier. The Lebanon Authority was originally organized June 8, 1935 to finance a million-dollar high school project. The authority was revived by the city council on November 15, 1945 to facilitate a loan of $750,000 for proposed water improvements.

The loan will finance the construction of a dam 62 feet high providing a reservoir with a capacity of 450,000,000 gallons. It will connect with the present system through a 36-inch cast iron pipe line a little over 18 miles long. Water pressure in the line will be held to 45 psi, the same as is maintained in the present system. The line will produce an estimated 3½ mgd.

Municipal Government in the Soviet Union During Rehabilitation

ADMINISTRATION of districts, villages, and cities in the Soviet Union is in the hands of the deputies of the Soviet of Working People of each community. In a city as large as Leningrad there are several such soviets, and each deputy represents 3,000 electors. In such a small unit the deputy is well known to his electors and works with many of them who volunteer to work in the District Soviet.

An interesting account of the activities of the soviets appeared in the January issue of the Information Bulletin of the Embassy of the Union of Soviet Socialist Republics. The author, Arkadi Klyachkin, describes the wartime activity of a District Soviet in Leningrad which organized home defense groups, set up air raid shelters, first aid stations and service for troops. In peacetime, the administrative unit usually includes a Sanitary Commission, a Financial Commission for rent control, a Building Commission to check up on building repairs, and a court to deal with grievances among the people of the district.

In addition to the district commissions, the deputy serves on commissions of the City Soviet, which is responsible for administration of the entire city. These would include the following: Building Commission, Housing, Budget, Municipal Services, Public Health, Education, Local Industry, City Transport, Trading, Heat and Power. These commissions check on the work of the organizations under their jurisdiction and draft governing resolutions for the Soviet.

Today the deputies and volunteers of cities and villages all over Russia are busy with the problem of rehabilitation and long range planning.

Community Center to Combine Memorial, Civic, and Recreation Features

(*Continued from page* 80)

sections. The outdoor swimming pool and the craft rooms as well as an indoor pool can be added as needed. It is not anticipated that construction will be delayed until all of the funds have been raised. While popular subscriptions are now the only source of income for this project, it is hoped that both the town and county may eventually contribute to this fund.

As for maintenance, our estimates indicate that the entire cost can be met from revenues obtained from bowling, swimming, basketball, and rentals of office space, meeting rooms, and the auditorium. All of the 33 organizations in Vestal can be provided with adequate rooms for their various functions — meetings, dinner parties, and the like. Our community now has no adequate meeting place but the school building, which cannot accommodate much outside activity, because of the great scope of its own activities.

The board of directors of the association will continue as the governing body. They expect to select a manager to operate the building and arrange and select programs.

Readers interested in war memorials will find a fund of information in *Commemoration Through Community Services*, a brochure on trends in living memorials publishel by The American City Magazine Corp., 470 Fourth Ave., New York, N. Y. Single copies $1; lower price in quantities.

Long Island Communities Discuss the Shopping Center Problem

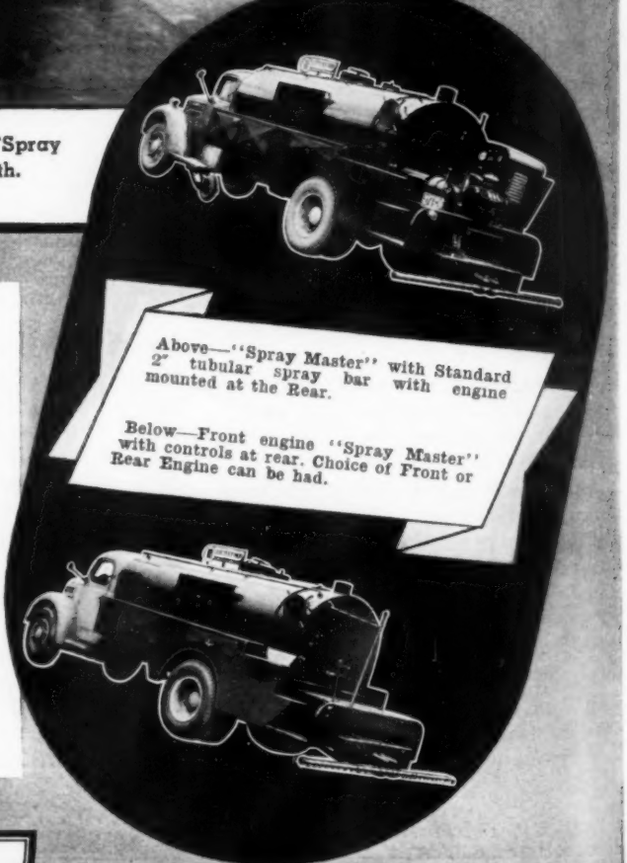
THE SECOND Forum on Community Planning sponsored by the Roadside Committee of the Long Island (N. Y.) Association was held April 25 in Garden City, N. Y. Thirty-eight organizations and communties were represented at the meeting, which had for its topic "Shopping Centers and Parking Facilities."

Frederick P. Clark, Planning Director of the Regional Plan Association was moderator and Professor Frederick J. Adams, in charge of city and regional planning at Massachusetts Institute of Technology, addressed the group on the basic elements of community planning. Discussion centered around the ways in which parking and shopping center problems are being met on Long Island.

IT'S EASY TO KEEP CITY ROADS AND STREETS REPAIRED WITH A "SPRAY MASTER"

With Vacuum-Flow Full Circulating Spray Bar, the "Spray Master" sprays material at desired Spray Bar width.

The "Spray Master" will apply Bituminous material to any Road, Street or Highway with the least amount of effort and at less operating cost than any unit of its kind. No matter what width spray bar is desired, up to 24 feet, the "Spray Master" just puts the material down like a carpet. With the Vacuum-Flow Full Circulating Spray Bar the individual nozzles can be turned off, giving the desired spray bar width for the job. The operator turns the Single Control Valve to Spray and instantly the most efficient spray job is under way. When the end of the job is reached the operator turns the control valve to Circulate and the spray stops instantly. Circulating by Vacuum eliminates any pressure on the spray bar, assuring an instant cut off of the spray. Make your next unit a "Spray Master," the Master of Bituminous material Spraying.



Above—"Spray Master" with Standard 2" tubular spray bar with engine mounted at the Rear.

Below—Front engine "Spray Master" with controls at rear. Choice of Front or Rear Engine can be had.

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tation and long range planning.

met on Long Island.

Recent City Manager Appointments

LEFT TO RIGHT: *Roderic B. Thomas, city manager of Corpus Christi, Texas., whose appointment was announced in May. W. A. Rogers, city manager of Sterling, Kansas, whose appointment was also announced in May. D. C. Turner, city manager of Largo, Fla. His appointment was listed in March.*

CYRUS F. BREEDEN, former post engineer, Strother Army Airfield, has been appointed manager of Winfield, Kans., to replace P. Frankenfeld who is returning to contracting business.

W. H. CARPER, planning engineer, State of Virginia and former manager of Culpeper, 1940-43, Clifton Forge, 1943-45, has been appointed manager of Harrisonburg, Va., replacing Wm. G. Myers who retains post as city engineer.

ALBERT CYR has been appointed first town manager of Madawaska, Me.

M. D. DAVIS has been appointed town manager of New Portland, Me.

J. B. DORIOT has replaced R. J. Brule as city manager of Navasota, Texas.

L. EVERETT GERRISH, town manager of Brownville, Me., since July, 1944, has been appointed at Dexter, Me.

JAMES L. GROVES, an engineer, has been appointed city manager of Toccoa, Ga., effective June 1, replacing J. R. Herndon.

JOHN R. HAMMAN, city manager of Mangum since Oct. 1943, has been appointed first manager of Chickasha, Okla.

JAMES HUGHES has been apponited city manager of Farmville, Va., to replace R. B. Johns.

HENRY M. KIMPEL, finance director for the past 14 years, has been appointed city manager of Cleveland Heights, Ohio, succeeding H. H. Canfield, who resigned effective May 1. Mr. Canfield has been in the employ of the city 36 years, the last 24 as manager.

HENRY W. KNOWLES has agreed to stay on as manager of Mars Hills, Me., for the next year.

R. K. MCCORD has been appointed city manager of Avondale Estates, Ga.

CLIFFORD MCKIBBIN, JR., former city superintendent at Charlevoix, Mich., and more recently a lieutenant in the Navy, has become first city manager of Winter Park, Fla.

DENZIL W. MOULTON, city engineer of Chattanooga, Tenn., has been appointed city manager of Kingsport, Tenn., effective June 1.

A. C. NICHOLS, city manager Clearwater, Fla., 1934-39; Greenwood, S. C., 1939-42, and Wilmington, N. C., since Aug. 1942, has been appointed city manager of Daytona Beach, Fla., effective June 1.

H. M. Pierce, city engineer, has been appointed first city manager of Aberdeen, S. D.

J. G. ROLLINS, director of public works, Dallas, Texas, has been appointed city manager of Tyler, Texas. He replaces Acting Manager J. P. Ferrill who returns to his former position as Public Works Director.

H. L. Senseman, for the past five years engineer for Wyoming Township, Mich., has been appointed first manager of Fremont, Mich.

WALTER C. SMITH, who has been on leave to serve as colonel in the Corps of Engineers, returns to his post as city manager of Wheeling, W. Va., replacing Robert L. Plummer.

NOLAN SPARKS is now manager of Panhandle, Texas, replacing Herbert M. Campbell.

NAT STEVENS, former member State Highway Dept., has been appointed first manager of Conway, N. H.

T. M. STOKES, former secretary-treasurer, has been appointed city manager of Pittsburg, Texas, effective June 1.

ANDREW C. SWAN, town manager of Blaine, Me., for the past year, has been appointed first town manager of Richmond, Me.

HAROLD B. VASEY, city manager of Montrose, Colo., from 1940-41, and more recently with the federal bureau of the budget, has been appointed first manager of Brookfield, Mo.

GERALD D. WILKINS, Housing Manager of FPHA, Wichita, has been appointed first city manager of Liberal, Kans., effective June 15.

CHARLES A. WILLIAMS has been appointed acting manager of Paducah, Ky., succeeding Harry G. McElwee.

CLARENCE E. RIDLEY
Director
International City Managers' Association, Chicago, Ill.

Revenue Bonds Now Legal for Missouri Municipalities

AN OPINION handed down April 30 by the Missouri Supreme Court cleared the way for Missouri cities to vote revenue bonds under the state's new constitution for financing municipally-owned utilities.

Written by Judge C. A. Leedy, Jr., as reported in *The Bond Buyer* for May 11, the court's unanimous en banc opinion held that the section of the state constitution authorizing incorporated cities, towns, and villages to issue utility revenue bonds by a four-sevenths majority vote is self-enforcing and needs no legislative action to implement it.

Several Missouri municipalities were reported to be preparing to hold elections for the issuance of utility revenue bonds, but had deferred action pending the outcome of the case just decided by the State Supreme Court.

The Municipal Bond Market

Some sales of new issues as reported in the current issues of *The Bond Buyer*:

Amount	Borrower and Purpose	Rate (%)	Term (Years)	Basis (%)
$133,000	St. Paul, Minn., Public Welfare	.70	2 Avg.	.68
110,000	Warren Co., N. Y., Airport, Series A.	.75	5.75 Avg.	.728
150,000	Barnstable, Mass., Bridge	.75	1-10 Ser.	.718
100,000	Hillsdale, Mich., Electric Light and Power	.75-2.0	4.75/15.50 O.-A.	.857
195,000	Johnson Co., Ind., Hospital	1.0	13.75 Avg.	.986
200,000	Dartmouth, Mass., Water Main	1.0	7.83 Avg.	.84
500,000	New Castle, Pa., General Improvement.	1.0	15.66 Avg.	.95
178,363	Kansas City, Kans., Improvement	1.0	5.50 Avg.	.76
110,000	Wakefield, Mass., Sewer	1.0	9.75 Avg.	.96
780,000	Hempstead, N. Y., Union Free School Dist. No. 17	1.25	16.5 Avg.	1.247
174,000	Willoughby Township, Ohio, Local School Dist.	1.25	6.75 Avg.	1.172
6,000,000	Chicago, Ill., Park Dist., Improvement of 1946	1.50	10.50/19.75 O.-A.	1.1975
150,000	Juneau County, Wis., Highway Improvement—Series G	1.50	6-15 Ser.	.928
600,000	Frankfort, Ind., Waterworks Revenue	1.75	12.33/16.50 O.-A.	1.47
150,000	Maple Heights, Ohio, City School Dist.	2.0	11 Avg.	1.908

PHILADELPHIA PARKING SURVEY SHOWS 3 OUT OF 4 SHOPPERS RIDE PUBLIC TRANSIT

A recent survey by Robert A. Mitchell, Chief, Philadelphia Traffic Engineering Bureau, revealed that 75.4 per cent of Quaker City shoppers ride to and from the central business district in public-transit vehicles.

"These facts bear out what traffic engineers have believed to be true for many years," says Mr. Mitchell. "The great mass of business is done by persons using mass transportation. Therefore, merchants and business interests should support measures to free the streets where necessary for the better movement of all vehicles."

As a result of the survey, parking was prohibited on practically all streets in downtown Philadelphia—with the wholehearted backing of the important merchant associations.

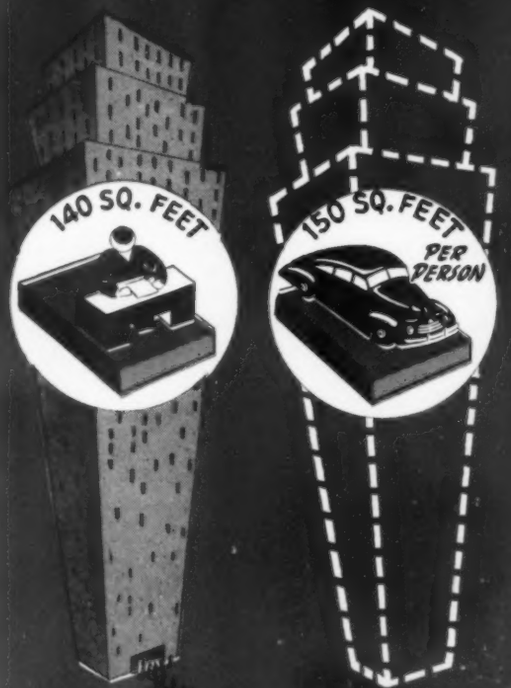
Comprehensive studies clearly show the impossibility of providing adequate parking facilities for all potential automobile users in most business areas. That's why an up-to-date public transit system, with service so attractive that people will prefer it to driving their own cars, is a more economical and efficient way to use valuable street space.

Most popular of all transit vehicles, the modern trolley coach seats 44 passengers, uses only 70 square feet of street space per person—and needs no parking space. In scores of American cities, sustained riding increases conclusively prove the public's appreciation of this clean, quiet, smooth-riding transit service.

You can greatly ease traffic congestion, avoid the enormous expense for street widening, elaborate parking facilities, and superhighways by encouraging widespread use of transit vehicles. *Apparatus Dept., General Electric Company, Schenectady 5, New York.*

IF EVERYONE USED AUTOMOBILES PARKING SPACE WOULD DOUBLE THE NUMBER OF DOWNTOWN BUILDINGS

Averaging 1.75 passengers, each automobile uses 140 sq. ft. of parking space per person—about as much space as office buildings provide per worker. If everyone rode in automobiles, adequate parking facilities would almost double cubic volume of central buildings. Transit vehicles need no parking space, and use street space most efficiently.



GENERAL ELECTRIC

Have you seen
LIFESTREAM OF THE CITY
the new movie on urban transportation? Ask your G-E representative how you can arrange for a showing.

Traffic Control and Facilitation

Truman's Safety Conference Outlines Program of Action

Importance of accident records and street lighting pointed out

OVERSHADOWED at the time by more sensational news, the President's Highway Safety Conference held in Washington in May was perhaps as significant a meeting as any during the spring. The need to reduce the appallingly high accident rate demanded immediate action, and in the course of the Conference sessions a plan of action was evolved.

The Conference recommended positive, practical measures for the curtailment of street and highway accidents. These measures embrace laws and ordinances, accident records, education, enforcement, engineering, motor vehicle administration, and public information. A review of the recommendations follows:

Recommendations

1. Uniformity in state and local traffic laws and regulations should be achieved. This calls for the review of municipal ordinances and administrative regulations regarding motor vehicles and their use; the revision of these ordinances to bring them into conformity with the Model Traffic Ordinance and with essential provisions of the Uniform Vehicle Code; and the publication of laymen's summaries of the ordinances.

2. The collection and analysis of traffic accident reports should be put on an effective basis throughout the country and full use should be made of the records in guiding highway safety activities. It was specifically recommended that every municipality and state have an actively functioning accident records bureau with adequate funds and equipment and trained personnel.

3. American schools at all levels should conduct traffic safety programs which will give adequate guidance in accident prevention to more than thirty million young people and prepare them for future responsibilities. Specific recommendations were made for elementary schools, secondary schools, teacher education, colleges and universities, and pupil transportation. In regard to pupil transportation, local authorities were advised to fix responsibility for administration and supervision of a program which would enforce the state requirements, provide sufficient vehicles to prevent overloading, develop safe schedules, and train pupils in safe bus transportation habits.

4. States and cities should conduct continuing traffic law enforcement programs of the type that will induce maximum voluntary observance of driver and pedestrian regulations. There are two general recommendations: that courts, prosecutors, and police departments be given adequate personnel, modern facilities necessary for efficient operation, and sound administrative organization and direction, and that all corruption, special privilege, and political interference be eliminated from enforcement processes.

More Traffic Accidents in New York City

Blaming relaxation of wartime restrictions and the resulting 50% increase in the number of vehicles in use, Police Commissioner Arthur W. Wallander of New York City has reported a sharp upturn in traffic fatalities and injuries in the city since the first of the year. Figures for the January 1-May 12 period of 1941, 1945, and 1946 follow:

	1941	1945	1946
Accidents	7,603	4,620	5,971
Deaths	278	231	282
Injuries	8,973	5,370	7,084

5. Engineering principles and techniques for the reduction of physical hazards and for the safe, efficient control of traffic movements should be fully utilized by all appropriate agencies concerned with highway transportation. Specific measures include the modernization of principal streets and highways and the provision of modern street and highway lighting on main urban streets and on the more hazardous sections of suburban and rural highways.

6. The states should adopt sound policies and procedures in the field of motor vehicle administration, with special attention to driver licensing, vehicle inspection, and other regulatory measures affecting highway safety.

7. Aggressive, continuing efforts to educate the public in highway safety should be made by the several media of public information, by all public officials concerned, and by every interested organization.

The Plan of Action

To mobilize public support essential to the program recommended, the Conference urged the following immediate action:

1. That three committees of independent and equal status be formed for the purpose of coordinating a highway traffic safety program on a nation-wide basis.

a. Coordinating Committee for Federal Departments to coordinate the highway safety activities of all federal agencies, to encourage cooperation in highway safety activities of the federal government with the agencies of the several state and local governments and with those of national non-official organizations.

b. National Committee of State Officials to appraise existing conditions within the states, to coordinate their highway safety activities and jurisdictions, and to work closely with the Coordinating Committee for Federal Departments in a supporting, advisory, and consulting capacity.

c. National Committee of Non-Official Organizations to serve as a clearing house and coordinating agency for all such national organizations, to assist in the development of the traffic safety programs of its participating organizations, and to work closely with both the Coordinating Committee for Federal Departments and the committee of presidents of associations of state officials in a supporting, advisory, and consulting capacity.

2. That the governor of each state establish a Coordinating Committee of Officials for the official state highway safety program to determine exactly what is needed to develop an effective program and to arrange means of close coordination between local and state official activities.

3. That the governor of each state call a State Highway Safety Conference to discuss and take action on: the adaption of the technical highway safety program to the needs of the particular state, the working relationship to be established between the Coordinating Committee of Officials and the state-wide traffic safety organization, the periodic review of the official state highway safety program by the Coordinating Committee and the supporting safety organization, and the method of financing the state-wide traffic safety organization.

4. That, coincidentally with the calling of a State Highway Safety Conference, the governor establish a state-wide traffic organization where none now exists. Such an organization must be entirely free from partisan politics and should offer full opportunity for public expression and participation through a membership of representatives of all state-wide organizations, a representative of each local safety committee, and outstanding individuals selected because of their particular interest.

5. That the chief executives of county and municipal governments follow the same procedures as those suggested for the states by establishing a Coordinating Committee of Officials, analyzing existing local conditions in highway safety in comparison with the approved technical program, securing the establishment of a local traffic safety organization, and call-

You couldn't make a better investment to save their lives

THE municipal official who sponsors good street lighting not only stimulates the healthy growth of his community, but also provides a mighty sound life insurance policy for its citizens.

Good street lighting puts a brake on crime and reduces traffic accidents. It simplifies traffic control. Builds civic pride. Encourages industry. Promotes business.

Where good street lighting is lacking, just the reverse is true... and, more often than not, the cost to the taxpayer is many times greater.

To make a lasting contribution to the prosperity of the people you represent, make sure they have the advantages of all that is new in this type of outdoor illumination.

Your electric utility company will be glad to tell you what today's minimum standards are; how quickly and economically your town can be brought up to date. They will also help in surveying your needs, and in planning a progressive improvement program. Get in touch with them today.

For a copy of the Illuminating Engineering Society's new Street Lighting Code, write The Street and Traffic Safety Lighting Bureau, 155 E. 44th St., New York 17, N. Y.

GOOD STREET LIGHTING—THE SIGN OF A GOOD PLACE TO LIVE

ing a Local Highway Safety Conference for consideration of items similar to those listed for state conferences.

6. That in states which already have a Coordinating Committee of Officials and a safety organization with a comprehensive program, a Highway Safety Conference be called to review the existing program.

7. That national, state, and local organizations endorse and support the recommendations of the President's Highway Safety Conference and the official highway safety programs of state and local governments.

8. That national, state, and local organizations utilize every possible means to inform their members of the technical highway safety program approved by the President's Conference and of the problems of fitting this program to the needs of the several states, counties, and municipalities.

9. That all national organizations immediately seek full and continuing support of their state and local units for cooperation and active participation in the state and local highway safety conferences and traffic safety organizations.

10. That all national organizations, and through them their state and local units, endorse and secure continuing active support for such broad and important supplemental highway safety programs as the Police Traffic Safety Check, the National Traffic Safety Contest, and the National Pedestrian Contest.

Rhode Island Has Traffic Safety Check

ATTACKING the highway accident problem at the source, the Rhode Island Safety Commisson and state representatives of the International Association of Chiefs of Police launched a six weeks' "Police Traffic Safety Check" beginning May 15. The main feature of the campaign is a thorough check of automobile lights, tires, windshield wipers, and horns.

Service stations and garages are cooperating in the drive by checking the cars that stop for service. When a car is in satisfactory condition, the owner receives a certificate exchangeable by any police officer in the state for an official sticker bearing the seal of Rhode Island and the certification of the International Association of Chiefs of Police. The sticker should be placed on the rear window of the car.

For the campaign, the state has been divided into districts, each with an official coordinator. The police chiefs and the Commission hope to get nearly 100% coverage of cars in Rhode Island during the six weeks' period.

Safety Film Highlights Highway Conference

"IT'S Wanton Murder!" is the title of a motion picture made under direction of the American Transit Association. Previewed at the President's Highway Safety Conference in Washington, the film was shown at the Association's annual safety awards banquet in the Waldorf-Astoria in May. It tells the story of a young father who survived the war only to be killed by a careless driver.

The film, which runs 13½ minutes, is now being distributed through local transit companies to communities in the United States and Canada. It is expected that the companies will make the film available for showing in theaters and to local gatherings.

After the picture, safety awards were presented to representatives of nineteen transit companies. The awards were made on the basis of collision accidents per 100,000 miles operated and passenger accidents per 1,000,000 passengers carried. Silver plaques went to the following group winners:

Urban populations of 600,000 and over—Capital Transit Co., Washington, D. C., winner in 1943 and 1944

250,000 to 600,000—Georgia Power Co., Atlanta, Ga., winner in 1942, and Winnipeg Electric Co., Winnipeg, Canada, winner in 1941, 1942, 1943, and honorable mention in 1944

100,000 to 250,000—South Carolina Electric and Gas Co., Columbia, S. C.

30,000 to 100,000—Hamilton City Lines, Hamilton, Ohio, winner in 1941, 1943, and 1944

Urban and suburban populations of 30,000 and over—Philadelphia Suburban Transportation Co., winner in 1943 and 1944

Certificates for high achievement and for improvement over the previous year were awarded the following transit companies: the Milwaukee Electric Railway and Transport Co., Milwaukee, Wis.; Department of Street Railways, Detroit, Mich.; the Connecticut Co., Hartford, Conn.; Georgia Power Co., Atlanta, Ga.; Mobile City Lines, Inc., Mobile, Ala.; Sandwich, Windsor and Amherstburg Railway Co., Windsor, Ontario, Canada; Southern Indiana Gas and Electric Co., Evansville, Ind.; Nueces Transportation Co., Corpus Christi, Texas; Eau Claire Transportation Co., Eau Claire, Wis.; Springfield City Lines, Inc., Springfield, Ohio; Georgia Power Co., Augusta, Ga.; Portsmouth City Lines, Inc., Portsmouth, Ohio; Public Service Coordinated Transport, Newark, N. J.; Birmingham Electric Co., Birmingham, Ala.

Two-Way Radio Facilitates Chicago Surface Lines

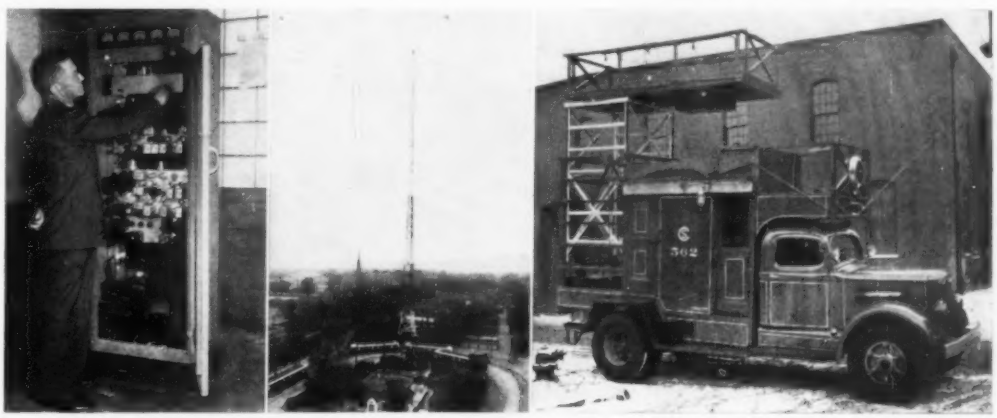
TRAFFIC tie-ups arising from fires, accidents, and obstructions are quickly relieved through the effective dispatch system of two-way radio used on the Chicago Surface Lines. To facilitate the operation of Chicago's 3,500 street cars, gas buses, and trolley buses, eighteen transportation supervisors equipped with Motorola two-way radio cruise in specific areas covering 1,200 miles of singleway route.

Notice of emergency is received in the Surface Lines radio control room and relayed by the dispatcher to the supervisor of the area in which it occurs. In a matter of minutes the supervisor is on the scene, appraises the situation, and acts to remedy it, keeping in constant contact with the dispatcher.

Radio-equipped wreck trucks of which the utility department has fifteen are called in to clear away collision wreckage, tow off disabled vehicles hindering the right-of-way, or to render other service needed.

The eleven line trucks of the electrical department are also equipped with two-way radio. Their principal duty is to maintain overhead cable and wire; however, they can, within a moment, be dispatched to a nearby intersection to tow away a stalled automobile or collision wreckage.

The department's underground



From left to right are the Motorola frequency modulated transmitter for the Chicago Surface Lines two-way radio, the 250-ft. steel radio tower at the Madison Street western terminal, and a line truck equipped with two-way radiotelephone. The quarter-wave antenna on the truck is capable of picking up signals throughout the Chicago area.

PAG

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You couldn't make a bet

investment

THE municipal official who sponsors good street lighting not only stimulates the healthy growth of his community, but also provides a mighty sound life insurance policy for its citizens.

Good street lighting puts a brake on crime and reduces traffic accidents. It simplifies traffic control. Builds civic pride. Encourages industry. Promotes business.

Where good street lighting is lacking, just the reverse is true... and, more often than not, the cost to the taxpayer is many times greater.

To make a lasting contribution to the prosperity of the people you represent, make sure they have the advantages of all that is new in this type of outdoor illumination.

Your electric utility company will

imum standards are; how quickly and economically your town can be brought up to date. They will also help in surveying your needs, and in planning a progressive improvement program. Get in touch with them today.

For a copy of the Illuminating Engineering Society's new Street Lighting Code, write The Street and Traffic Safety Lighting Bureau, 155 E. 44th St., New York 17, N. Y.

GOOD STREET LIGHTING—THE SIGN OF A GOOD PLACE TO LIVE

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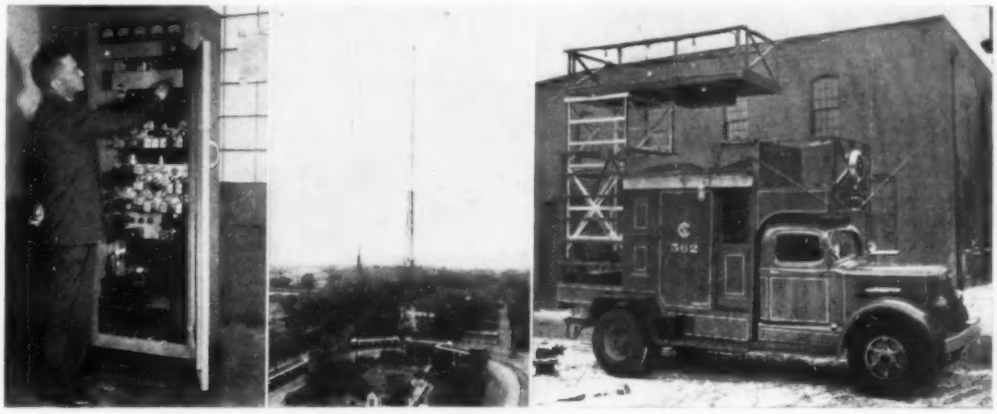

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ATLANTA TO CONVERT 21 LINES TO *Trolley Coach* OPERATION

The Georgia Power Company believes in giving its riders the best in modern transportation. That is why this company, now operating 113 trolley coaches, will purchase 259 additional rubber-tired electrics. Orders for 140 of these new coaches have already been placed.

As part of a $5,000,000 modernization program, 20 street car lines and one motor bus route will be changed over to this popular service. When the conversion is complete, trolley coaches will be operating over 257.4 round trip miles of routes in this city.

Trolley coaches were selected to furnish the major part of Atlanta's future transportation service because of their past performance record. Ever since the original installation was made in 1937, these vehicles have done an outstanding transit job.

Lines on which they replaced other transit vehicles have shown riding increases as high as 20 per cent. They have proved efficient and economical to operate and have consistently returned high net earnings. No wonder Atlanta's future transportation is going TROLLEY COACH.

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CANADIAN OHIO BRASS CO., LTD., NIAGARA FALLS, ONT.

cable repair truck also owes part of its efficient operation to two-way radio. The underground feeders must be in a constant state of good repair, and radio helps to keep the circuits active at those times when failure would mean serious traffic congestion.

Even though all departments of the surface lines operate independently, each superintendent is kept completely informed by means of eight receiver-equipped mobile units. Such an arrangement makes for good cooperation and provides means of notifying these men simultaneously of some major emergency.

All the mobile units have complete Motorola radio equipment—one thirty-watt frequency modulated transmitter in conjunction with an FM receiver. To contact the dispatcher, the vehicle operator pushes a button on the microphone suspended from the instrument board and speaks, then releases the button to hear the dispatcher's answer.

The transmitter for the system is housed in the radio "shack," a storm resistant brick building, located on Chicago's west side at Madison and Austin Streets. A frequency-modulated Motorola FSTR-250 BR made by the Galvin Manufacturing Corporation of Chicago, it operates on a frequency of 39.86 megacycles and is remotely controlled from the downtown office by means of 7½ miles of telephone wire. The 250-foot steel radio tower was erected in 1942.

Parkway Speed Limits

SINCE parkway conditions in metropolitan areas differ from highway conditions in regard to design, present and anticipated volume of traffic, and peak traffic loads, speed limits vary.

The 50 miles per hour law for New York State recently signed by Governor Thomas E. Dewey applies only to public highways. Parkway speed regulations for the New York City area have been set by city, county, and state parkway authorities as follows:

In New York City—35 miles per hour

In Nassau and Suffolk Counties—40 miles per hour

In Westchester County—Cross County and all parkways south to the city line—35 miles per hour; all parkways north of Cross County Parkway—40 miles per hour, except Taconic State Parkway from Hawthorne Circle to Putnam County line including the Bear Mountain spur—45 miles per hour; Putnam County and north—50 miles per hour.

Ohio Speed-Zones Dangerous Sections of State Highways

THE Division of Traffic and Safety of the Ohio State Highway Department is establishing speed zones on dangerous road sections throughout the state in an effort to reduce Ohio's traffic fatality rate.

Department Director Perry T. Ford has the power, under Section 6307-21 of the General Code, to reduce the statutory speed limit of 50 miles per hour to a "reasonable and safe speed upon any portion of a state highway whenever he has determined by a traffic and engineering investigation that the statutory *prima facie* speed limit of 50 miles per hour is unreasonable or unsafe for existing conditions."

State Route 18-75 east of Mallet Creek, Medina County, has been speed zoned, as has the section of US-36-37 near the Alum Creek bridge about half way between Delaware and Sunbury. Roadside signs warn motorists of the reduced speed limits, and traffic lines and markings painted on the pavement guide drivers. The State Highway Patrol has been instructed to enforce the zone speed limits.

Similar speed zones have been established in Ohio from time to time as "guinea pigs," but this is the first time the Highway Department has had a sustained campaign to speed zone every dangerous section of state highway.

Detroit Planners Tackle Parking Problem

LACK of adequate off-street parking facilities for private cars results in street congestion, high accident rates, progressive decentralization of business, blighting of residential areas, loss of business, and need for street widening. Consequently, when the increasing use of private automobiles for urban transportation began to present a serious problem after gas rationing was stopped, the City Planning Commission of Detroit, Mich., made a study of the off-street parking facilities and in March of this year drafted an amendment to the existing zoning ordinance.

The amendment, approved by the Traffic Engineer and favorably received by the Common Council, calls for facilities for all types of buildings and land use.

The term "Parking space," as it is defined in the amendment, means an area of not less than 160 square feet located on the same lot as the building it is intended to serve.

A minimum amount of parking space is determined in accordance with an established table, and no building permits are to be issued for any building or extension or change in use of a building unless off-street parking facilities required by the ordinance are included.

Under the terms of the ordinance, loading space is not considered as supplying off-street parking space.

Modern Traffic Signal Features

By EDWARD H. EAMES
Traffic Engineer
Automatic Signal Corporation
Norwalk, Conn.

IN MODERN traffic signals and controllers, traffic engineers can anticipate such features as the following:

1. Flexible unit signal construction with adjustable signal faces built up of single lens units.

2. Signal controllers providing a considerable range of signal color sequences, a wide range of timing, and more control of the signal time cycle by traffic actuation. Controllers are adapted for either isolated or coordinated operation.

3. Fixed-time flexible progressive systems for a single progressive plan of operation or for multiple plans.

4. Semi-actuated or fully actuated controllers for minimum interruption of traffic and maximum quick service.

5. Supervision of a series of such semi-actuated or fully actuated controllers for progressive flow of traffic.

6. Traffic-actuated cycle selector which controls the total time cycle to accommodate faster or slower moving traffic automatically.

7. Speed control by signals introducing a time delay after traffic detector actuation.

8. A combination of speed control and normal intersection control in one form of traffic actuated controller.

9. Automatic lengthening of the yellow period for a short interval up to a maximum addition of two seconds by traffic actuation in the yellow period.

10. A traffic-actuated controller which takes into account the density of traffic waiting on the red signal on one street as well as the density of traffic moving on the green signal on the cross street.

From "Traffic Signal Modernization and Standardization," *Traffic Engineering*, April 1946.

a shining example of GOOD STREET LIGHTING

SOME years ago, Chattanooga formulated a comprehensive plan for modern, efficient street lighting. This plan was inaugurated before the war. Now, Chattanooga is preparing to continue and to expand this program.

Chattanooga stands as one of the country's leaders in realizing the importance of good street lighting as a major factor of permanent good living and community safety. Its installations are outstanding examples of good street lighting because it took advantage of the latest developments in street lighting techniques. And the original installations have more than justified themselves by reducing pedestrian and automobile accidents to a minimum.

Today, other cities throughout the country —shocked by the steadily rising toll of after-dark traffic fatalities—are following Chattanooga's lead in a concentrated effort to save human lives. Sparking this national campaign, the Illuminating Engineering Society has just released its new street lighting code, making recommendations for the improvement and modernization of street lighting. Union Metal's steel street lighting standards were designed and engineered to meet all of the requirements of this code and are available to you today in styles to suit your taste and your pocketbook.

Does your street lighting meet today's requirements? Write the Union Metal Manufacturing Co., Canton 5, Ohio, if you would like a copy of the new I.E.S. street lighting code or a copy of our latest catalog.

UNION METAL

Largest Producers of Street Lighting Standards

Outdoor Lighting

Street and Highway Safety Lighting

By A. G. OTTENHEIMER
District Lighting Specialist
General Electric Company
Chicago, Ill.

THE NEED for programs modernizing the lighting of arterial streets has become increasingly apparent. The average lighting on many such streets consists of a 2,500-lumen or at best a 4,000-lumen lamp at each intersection, an inadequate light source for 12,000 square feet of city street.

In the last pre-war year 14,000 people were killed and half a millon more injured on streets within city limits. Daytime deaths and accidents are slowly decreasing, but night deaths and injuries are climbing. Although only 25% of traffic is on the streets at night, the hours of darkness account for 50% of the accidents and 60% of the fatalities.

This relationship between death and darkness led the Street and Traffic Safety Lighting Bureau to conduct a survey in a number of representative cities. The study revealed that 73% of the total fatalities occurred at night and that the scenes of half the night fatalities were main arterial thoroughfares representing only 10% of the mileage surveyed.

The survey showed also that seven of every ten persons killed were pedestrians and that 69% of the pedestrians were killed at night when traffic is much lighter. One of the conclusions reached was that the difference between day and night rates of injuries and fatalities narrows down to visibility, or the amount of light available for seeing.

All of the cities surveyed had street lights, but on the main arterial thoroughfares covered, the street lighting averaged less than one-half the minimum recommended by the Illuminating Engineering Society.

Records in Detroit, Mich., show that the ratio of seven night fatalities to one day fatality was changed after the installation of modern lighting in 1936 to 1.6 night fatalities to one day fatality.

Fewer Crimes on Lighted Streets

The reduction of traffic accidents is but one of the services which good street lighting can perform. Correct and adequate lighting safeguards both persons and property. Available figures indicate a 40% decrease in crime on adequately lighted streets.

The first step for a city in setting up a program of adequate lighting is to classify the streets as business streets, traffic arteries, residential streets, or highways. Next the light should be apportioned according to conditions in these various groups. Definite standards have been established in the recommended practice of the Illuminating Engineering Society, and tables and charts giving the minimum amount of light necessary for good visibility on the various types of streets are available.

It is entirely probable that the lighting plan recommended would involve too great a change to be accomplished in one or two years. In that case, arrangements should be made for an improvement covering a longer period, perhaps five years. Lighting the main thoroughfares is the first big step.

Present Source of Light

According to research engineers, the bulk of street and highway illumination in the immediate post-war period will continue to be incandescent. The incandescent lamp has an approximate efficiency of 20 lumens per watt, compared with 55 lumens per watt for sodium and 40 lumens per watt for mercury and flourescent. Experimental work has been done in connection with the fluorescent light source for street illumination. However, in spite of its relatively high efficiency, it has the disadvantage of low output in illumination per foot of tube.

Outdoor Lighting for a Housing Project

THE Outhwaite Housing Project in a residential section of Cleveland, Ohio, was built in 1937 and the final extension was added in 1943. The main street through the project is Quincy Avenue. It is paved with white concrete and is sixty feet from curb to curb and 1,600 feet long. Because of the large vehicular and pedestrian traffic on Quincy Avenue, both day and night, proper street lighting was a main consideration in the planning and construction of this district.

The lighting on Quincy Avenue consists of standards arranged in a staggered formation about one hundred feet apart. Each luminaire is equipped with a General Electric 10,000-lumen, 20-ampere series incandescent lamp fed from an insulating transformer located in the base of each standard.

The horizontal illumination on the street surface, measured a year after the installation and between normal cleaning periods, averaged 0.6 footcandles and had a maximum value of 1.22 footcandles 15 feet from the curb and under the luminaire; it had a minimum value of 0.17 footcandles at the curb directly opposite the luminaire. These values are somewhat above the minimum given by the Recommended Practice of Street Lighting, 1940. This amount of illumination gives excellent visibility for motorists and pedestrians.

A local residential or service street, north of Quincy Avenue carries little, if any, through traffic so that the lighting here had to provide adequate night visibility for strictly local residential traffic. The street is lighted with nine luminaires equipped with Holophane refractors and mounted 22½ feet high in Union Metal poles with 6-foot bracket arms. These stand-

EDITOR'S NOTE: These data were submitted by Jay E. Wagner, Jr., Street Lighting Engineer, and George C. Oxer, Commissioner of Lighting and Power, Cleveland, Ohio. Distribution was made by the Lighting Service Forum of the Illuminating Engineering Society, 51 Madison Avenue, New York 10, N. Y.

Spotlight SPORTS AND CIVIC EVENTS

with NEW Monotube Floodlighting Poles

NOW your town can triple the value *and popularity* of its athletic field or stadium . . . by equipping it for night use with modern floodlights supported by Union Metal's new "Monotube" Floodlighting Poles.

To municipal officials this offers a new opportunity to make use of public athletic fields and playgrounds for concerts, mass meetings and popular celebrations . . . as well as amateur and professional sports.

Engineered to provide maximum strength, durability and economy, Monotube Floodlighting Poles offer these advantages: (1) They're the only continuously tapered, cold-rolled steel poles on the market; (2) each pole is complete with standard safety platforms and mounting frames; (3) no guying necessary; (4) they're longer lasting—easy and economical to install and maintain; (5) their streamlined design adds to the attractiveness of your field or stadium.

Plan now to profit from these advantages by modernizing your sports field with efficient floodlighting. Monotube Poles are available in standard heights of 40, 60, 80 and 100 feet.

Write TODAY for the new, 8-page, fully illustrated catalog No. 76 giving complete information. The Union Metal Mfg. Co., Canton 5, Ohio.

UNION METAL

Monotube Floodlighting Poles

ards are arranged on the outside of each curved section of the street and are 137 feet apart. Specific locations of the standards were selected to augment the Project's yard lighting system.

New Lighting Code

FOUR years of research by leading illuminating and traffic engineers has resulted in a new edition of the street lighting code, entitled "Recommended Practice of Street and Highway Lighting."

The code, recently published by the Illuminating Engineering Society, is used by municipal and utility officials in evaluating the efficiency of their present street lighting systems and in planning new installations.

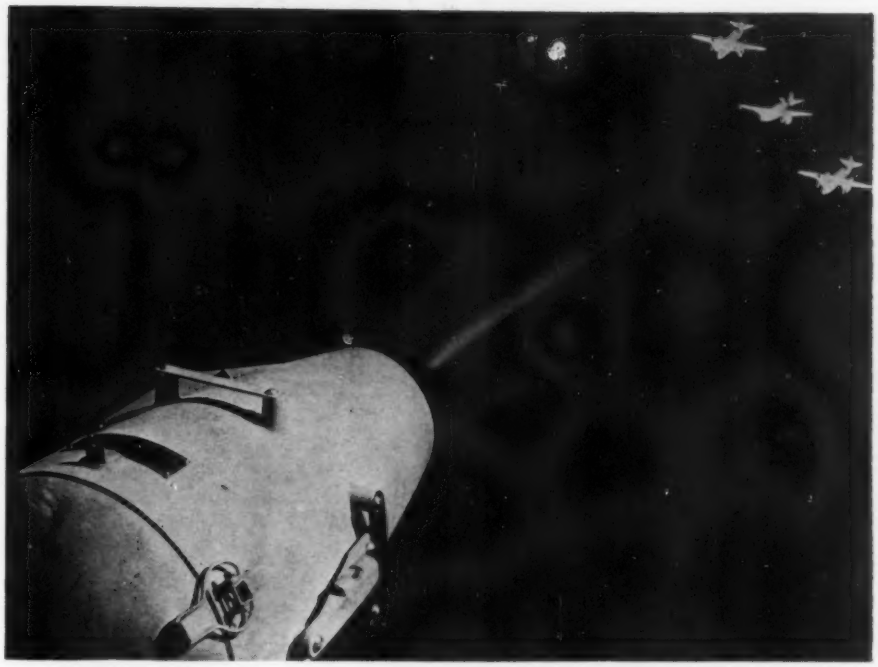
All roadways are classified by volume of vehicular and pedestrian traffic and light intensity is recommended accordingly. The lamp size and luminaire needed to furnish the recommended intensity are given with the mounting height and spacing based on the width of street or highway and reflectivity of the pavement surface. Situations such as curves, intersections, railway crossings, bridges, and dual highways are also considered.

The previous edition of the code was published in 1940. Copies of the new edition may be obtained for 50 cents from the Illuminating Engineering Society, 51 Madison Avenue, New York City 10.

Best Lighted City in Great Britain?

GLASGOW, Scotland, has 685 miles of lighted streets, and the municipal responsibility of lighting 25,000 stairs giving entrance to apartments and tenements. The 126,500 lights vary in consumption from 0.7 cubic foot of gas to 1,000 watts. J. M. Ward, assistant inspector of lighting at Glasgow told the 21st conference of the Association of Public Lighting Engineers that, "Glasgow was probably the best lit of the larger towns in Great Britain."

He attributed this to the control system, 25-foot mounting heights, and simplification of equipment. Since 1908, local practice has been to use that mounting height and about 120-foot spacings, and the feeling there is that low or even 20-foot mounting heights are unsatisfactory and to be endured only where economy compels. The standards are steel poles 37½ feet tall. The lighting load totals 4,000 kw. The city system is divided into seven control areas using the relay method of switching.



Sometimes referred to as the missing link of airport lighting, this approach angle indicator guides the pilot in to a safe landing through the projection of a tri-color beam.

New Airport Lights for Large and Small Fields

W. A. PENNOW, Engineer
Lighting Division
Westinghouse Electric Corporation
Cleveland, Ohio

ALTHOUGH many of the developments in aviation lighting during the last four years are obviously military, some will have a very important part in future civil installations.

One of the new types of equipment which should prove invaluable to many small private and feeder line airports is the mobile floodlighting unit. This jack-of-all-trades is about half the price of a low-cost floodlighting installation and gives as much light as an installation of ten times its cost. Entirely self-contained, it carries its own generator, transformer, and switchboard and can be used as a super-power searchlight for low visibility operations, as a landing area floodlight to light any size runway for any weather condition that permits flying, as a landing area floodlight of sufficient power to light the entire area of small, all-way (no runways) airports, as a mobile floodlight unit for lighting crash areas, or as an emergency power unit. This generator is 12-kva at 115/230 volts, 60 cycles, for maximum utility. Best of all, a clever power take-off arrangement permits use of the assembly either parked or in motion. The truck engine drives the generator.

Another of these special purpose units which we expect will come into rather wide use is called the "approach angle indicator." By use of precision-type lenses, much like those in a motion picture projector, and a 100-watt lamp, a tricolor beam—yellow, green, and red—is projected from the approach end of the runway toward the incoming plane. The color bands are arranged so that when the pilot sees the light as green, the plane is in the proper vertical approach zone. If it appears yellow, the plane is too high; if red, too low. As the green beam is only two degrees wide vertically and green-red is less than 5 minutes of arc vertically, a plane staying in the green area can make a power landing with safety. Small airports unattended at night would need only a lighted wind direction indicator for the airport and one of these units at each end of each landing strip to provide reasonable landing facilities for private night flying.

A vastly different set of problems must be considered for each type of airport. The range may well be from an airport such as Lost Nation at Willoughby near Cleveland with ten to one hundred private plane movements per day to the proposed super airport for the City of New York,

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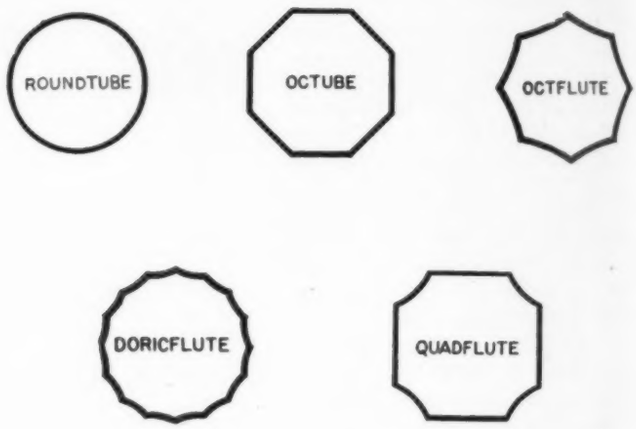

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This Equipment is a most modern advance in lighting public thorofares. . . . It is a threefold combination . . . scientific in construction . . . grace and beauty in design . . . durable light weight material . . .

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where airport design is based on six aircraft movements per minute (one every ten seconds) or about 9,000 movements per day.

At the Small Airport

The small, privately owned airport, whether operated by an individual, a flying club, or a small community, will probably be an all-way field, one having no runways or stabilized surface. Lighting for this class of airport might consist of a beacon—either rotating of flashing, a boundary circuit to outline the safe landing area, and an illuminated wind direction indicator, probably a wind cone or "sock." If activity and finances permit, a mobile lighting unit could be used as an all-purpose floodlighting system.

Next will be the small municipal airport built and operated with civic funds. Communities up to about 20,000 population will need airports of this type. Generally these will have two or three runways of stabilized soil and will require lighting sufficient for private and feeder aircraft. Such lighting we believe will include a beacon—rotating or flashing, runway marker light to outline the runways, approach angle indicators at each end of each runway, and an illuminated wind direction indicator, either a wind con or a wind tee. Again, if activity and funds permit, a mobile lighting unit may also be used.

Larger Installations

Large communities, up to 100,000 population, with good-sized airports with at least four paved runways, must be equipped to handle aircraft movements at an average of one every five minutes. These movements will include private planes, feeder planes, and, in many cases, commercial units. Speeds of these on approach and take-off will vary from zero for helicopters to about 120 miles per hour for commercial airliners. Lighting facilities must be capable of accommodating any one group or any combination of these planes in order to insure maximum safety. Basic lighting we believe will consist of a rotating beacon, flush type runway marker light and flush type range light—both equipped with brightness control and runway selector control, illuminated wind indicators of the smoke generator type located near the approach end of each runway to give the pilot an exact picture of wind direction and gustiness, landing area floodlights at each end of each runway, approach angle indicators at each end of each runway, and a low visibility approach lighting system at the end of at least one runway. This should be coordinated with the radio approach system.

There will be a considerable growth in airports and airways. We must try to forecast the problems which will arise and have the answers to them at hand. In post-war aviation, we shall have four broad classes to consider. In number of planes these will be 1. military, 2. private, 3 feeder, and 4. commercial. In daily aircraft movements the order will be 1. private, 2. feeder, 3. military, 4. commercial. In daily mileage the order would appear to be 1. commercial, 2. feeder, 3. private, 4. military. In traffic congestion at airports the order will probably be 1. commercial, 2. private, 3. feeder, 4. military. With this analysis plotted on curves and charts, a definite guide for probable requirements can be established.

South Africa Looks to American Lighting

SOUTH AFRICAN engineers are looking to the United States for outdoor lighting data. According to the February 1946 issue of the *South African Municipal Magazine,* a paper presented by E. P. Mawson before the Huddersfield Group of the Illuminating Engineering Society quoted figures on the lighting of open-air sports areas in America.

The paper, "Planning for Recreation with Special Reference to Lighting," dealt with the design of parks and recreation grounds and explained that derelict areas can be converted into attractive public parks incorporating playing fields. Since the lighting of open-air sports areas is not generally carried out in Britain, American data were used in reference to tennis, bowling, hockey, volley ball, croquet, quoits, race tracks, bathing beaches, footfall, trap shooting, and swimming pools.

Seeing Sewage at Night

WHEN THE Hackensack, N. J., sewage treatment plant went into operation in April 1940, five floodlighting units each consisting of three 500-watt floodlamps were installed. This activated sludge plant has a capacity of 3,000,000 gallons a day. The units light the aeration tanks which must be inspected for reading and sampling at least once an hour. Superintendent Arthur Lehman says the lighting has proved of great benefit in preventing accidents and facilitating the readings. Two additional 500-watt units have been acquired since.

Lancaster to Have New Lighting System

IN ITS plans for post-war development Lancaster, Pa., population 65,134, has included a comprehensive street lighting program which calls for complete modernization of current installations.

The present street lighting system comprises 924 incandescent lamps on wood poles, 166 arc lamps on metal standards, and five incandescent lamps on metal standards. The 1,095 lamps in the entire system have an effective 134,017 candlepower.

A survey completed by Michael Baker, Jr., and the Baker Engineers of Rochester, Pa., found the system inadequate for the city's needs and recommended an improvement program which calls for correct spacing of light standards; installation of additional light standards at traffic intersections, sparsely lighted residential streets, and congested traffic thoroughfares close to industrial plants; correct luminaire heights above the traveled thoroughfares; and installation of lamps of greater candlepower.

The lighting program is presented in "A Comprehensive Municipal Plan for the City of Lancaster, Pennsylvania," prepared by Mr. Baker at the request of Lancaster's Post-War Planning Council. Specific Recommendations are:

1. *For the main business thoroughfares* — ornamental metal standards with 36-inch brackets; standards located 75 to 90 feet apart and staggered; pendant, incandescent luminaires of 10,000 to 15,000 lumens.

2. *For secondary business streets*— standards having plain main shaft with ornamental base and 36-inch bracket; standards placed 100 to 125 feet apart and staggered; pendant, incandescent luminaires of 6,000 to 10,000 lumens.

3. *For all city streets used primarily for residential purposes, exclusive of streets serving as principal arterial and commercial traffic ways*—continued use of existing wood poles until such time as metal poles can be substituted. The metal pole recommended has a pendant, incandescent luminaire on a 36-inch bracket arm, plain base and main shaft, and a lamp of 2,500 lumens.

4. *For highway lighting*—standards located a minimum of eight feet from the pavement edge and luminaires hung on extended bracket arms from fixed upright standards. Spacing along streets and highways is determined by (a) street classification according to traffic volume, (b) curb to curb width of street, and (c) size of lamp used.

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Municipal Law Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS, Washington, D. C.
Charles S. Rhyne, Executive Director

Bonds—Refunding at Lower Interest Rate—Impairment of Contracts

In action for declaratory judgment and injunction restraining defendant from calling for redemption bonds and interest coupons issued by it in advance of maturity, held that issuance of bonds refunding at lower interest rate Louiisana parish school district bonds, bearing fixed rate of interest for a definite term and containing no provision for redemption before maturity, constituted an impairment of contractual obligations in violation of the Constitution. *Evangeline Parish School Board* v. *Kansas City Life Ins. Co.*, 153 F. (2d) 611 (U. S. C. C. A. Fifth, Jan 9, 1946).

Bridges—Maintenance of by County Within City—Discontinuance

In action to enjoin discontinuance of operation, maintenance, and repair of bridge in plaintiff city, held that repeal in 1937 of statute authorizing counties to assume duty of operating, maintaining, and repairing bridges across navigable streams within cities does not impair obligation of any contract, or involve any contractual or vested right of city, and continuance of such operation is left to discretion of county commissioners. *City of Hoquiam* v. *Grays Harbor County*, 166 Pac. (2d) 461 (Wash., Feb. 28, 1946).

Buses—Municipal Increase in License Fees—Impairment of Previous Contract

In action for judgment declaring ordinance regulating operation and licensing of motor vehicles carrying passengers for hire on city streets unconstitutional and enjoining collection of license fees and enforcement of ordinance, held that a condition in city ordinance that consents previously given street railroad corporation to operate passenger buses in city were subject to state laws and city ordinances then or thereafter enacted or passed reserved to city right to enact police regulations for public safety or good, but did no permit city to enact ordinances impairing or destroying contracts between it and corporation, such as ordinance increasing bus license fees fixed by previous ordinance. *Tilton* v. *City of Utica*, 60 N. Y. S. (2d) 249 (N. Y. Sup. Ct., Oneida Co., Feb. 2, 1946).

Dogs—Quarantine and Destruction of Rabies Suspects

Order of commissioner of health requiring owner to deliver up his dog for destruction or quarantine pursuant to resolution of city board of health providing for quarantining or destruction of dog suspected of being affected with rabies, was invalid, where under state of proof there was no reasonable basis for suspecting infection of dog. *People* v. *Adorjan*, 60 N. Y. S. (2d) 651 (N. Y. Ct. of Sp'l Sess., Mar. 4, 1946).

Elections—Filing Petition to Place Name on Ballot—Time Limit

Where petitions for placing upon official ballot for city election to be held April 2, the names of specified persons as candidates were tendered to clerk on March 4, held such petitions were properly rejected by clerk and city commisison as being tendered too late, in light of election laws as construed together, requiring filing with city clerk not later than thirty days before date set for election. *Austin* v. *City of Alice*, 193 S. W. (2d) 290 (Tex. Civ. App., Mar. 16, 1946). *Reh. den.* Mar. 11, 1946.

Electrical Distribution System—Condemnation—Part Located Outside City Limits

In action to condemn lands for public use, held that part of an electric distributing system can be condemned by a political subdivision, although balance of the system is situated outside the boundaries of such subdivision. *Sacramento Municipal Utility District* v. *Pacific Gas & Electric Co.*, 165 *Pac.* (2d) 741 (Cal. App., Jan. 22, 1946). *Reh. den.* Feb. 21, 1946.

Fire Trucks—Negligent Operation—Liability

In action for injuries sustained when automobile in which plaintiff was riding was struck by fire apparatus of defendant city and county, held that driver of emergency vehicle of city and county may be guilty of willful misconduct, but it is not necessary to prove any more negligence, giving due regard to particular circumstances involved. *Isaacs* v. *City and County of San Francisco*, 167 Pac. (2d) 221 (Cal. App., Mar. 25, 1946).

Fraternal Organizations—Tax Exemption of

In proceeding in matter of appeals from judgment of County Board of Taxation holding that the lands and buildings of Knights of Columbus Home Association were exempt from taxation, held that fraternal organizations are not included within tax exemptions provided by statute for buildings actually and exclusively used in work of associations and corporations organized exclusively for moral and mental improvement or for religious, charitable, or hospital purposes. *Town of Dover* v. *Knights of Columbus Home Assn*, 46 Atl. (2d) 376 (N. J. Tax App., Mar. 12, 1946).

Freedom of Press—Newspaper Articles—Pending Trials

Where series of newspaper articles and editorials denounced county judge's decision and conduct in a case as a "travesty on justice" and "high handed" and sought to force the judge to grant a new trial and change his decision and there was a clear and present danger that publications would accomplish that purpose, held that holding the parties responsible for such articles in contempt of court did not violate the right of freedom of press. Ex Parte Craig; Ex Parte McCracken; Ex Parte Mulvaney, 193 S. W. (2d) 178 (Tex. Ct. App., Feb. 13, 1946). *Reh. den.* Apr. 3, 1946.

Licenses—Storage Business— Coal in Interstate Commerce

Where township of Saddle River ordinance imposed license on business of storing personal property, held that such ordinance as applied to storage of coal in-transit in interstate commerce was not invalid even though state statute exempted personal property stored in a warehouse from taxation. *Independent Warehouses, Inc.* v. *Scheele*, 45 Atl. (2d) 703 (N. J., Jan. 31, 1946).

Pensions—Membership in Fire Force to Constitute Eligibility

In action involving question whether relator was eligible for membership in Firemen's Pension Fund, held that chief of fire force in fifth class city was not a "member" of such fire force so as to be eligible to membership in such fund. *State ex rel. Harrell* v. *City of Wabash*, 65 N. E. (2d) 494 (Ind. App., Mar. 15, 1946).

Second Hand Dealers—Ordinance Prohibiting Purchases from Minors Invalid

Where statute specifying authority of city with reference to second hand and junk stores and minors authorized city to license and regulate only second hand stores carrying on business similar to dealers in junk and rags, held that ordinance providing that no second hand dealer shall purchase any second hand article from any minor without written consent of parents or guardian was invalid insofar as it was sought to be applied to owner of second hand store dealing in musical instruments whose employee had purchased a trumpet from a minor. *City of Chicago* v. *Stone*, 66 N. E. (2d) 100 (Ill. App., Apr., 8, 1946). *Reh. den.* Apr. 22, 1946.

Schools—Salaries of Superintendent—Delegation of Power to Fix

Where statute authorized township trustees to increase salary of county superintendent of schools, and was applicable to all county superintendents throughout state, held that such statute is not unconstitutional as conferring a special privilege upon office of county superintendent of schools not conferred upon other public offices, even if constitutional prohibition against conferring special privileges applies to public offices. *Benton County Council of Benton County* v. *State ex rel. Sparks*, 65 N. E. (2d) 116 (Ind., Feb. 26, 1946).

Sidewalks—Coal Holes—Notice to City

In action against city for injuries sustained by plaintiff who fell into coal hole in public sidewalk, held that conditions shown by testimony did not indicate a latent defect with which defendant city could not be charged in absence of direct notice or knowledge. *Sheffield* v. *City of Chicago*, 65 N. E. (d) 486 (Ill. App., Mar. 11, 1946). *Reh. den.* Mar. 25, 1946.

Taxicabs—Liability Insurance Provisions—Extraterritorial Effect of Ordinance

Where city ordinance required taxicab companies to file liability insurance policy for licensing for operation on streets of city and contemplated operation of taxicabs, licensed thereunder, from points within city to points without, held that such ordinance is not invalid as giving extraterritorial effect to the ordinance. *Croft* v. *Hall*, 37 S. E. (2d) 537 (S. C., Mar 19, 1946).

Tippling Houses—Sale of Liquor—Violation of Ordinance

Where house illegally sold intoxicating liquor in small quantities to persons resorting thereto for purpose of drinking on premises, held that such house is a "tippling" house within meaning of city of Minneapolis ordinance prohibiting keeping of disorderly and ill-governed tippling house. *State* v. *Wilson et al*, 21 N. W. (2d) 521 (Minn., Feb. 1, 1946).

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Conventions—When and Where

June 16-21—Montreal, Quebec
INTERNATIONAL CITY MANAGERS' ASSOCIATION. Annual Conference (Hotel Windsor). Dir., Clarence E. Ridley, 1313 E. 60th St., Chicago, Ill.

June 17-19—Cincinnati, Ohio
NATIONAL ASSOCIATION OF COUNTY OFFICIALS. Annual Meeting (Hotel Netherlands Plaza). Sec.-Treas., George F. Simmons, Ogden, Utah.

June 20-21—Akron, Ohio
OHIO CONFERENCE ON SEWAGE TREATMENT. Annual Meeting (Hotel Mayflower). Sec., L. B. Burnes, c/o Sewage Treatment Plant, Bowling Green, Ohio.

June 20-22—Reading, Pa.
PENNSYLVANIA STATE ASSOCIATION OF BOROUGHS. Annual Convention (Hotel Abraham Lincoln). Pres., Thomas F. Chrostwaite, Hanover, Pa.

June 21-22—Peoria, Ill.
ILLINOIS ASSOCIATION OF SANITARY DISTRICTS AND AUTHORITIES. Annual Meeting (Hotel Pere Marquette). Sec.-Treas., John R. Longley, c/o Greater Peoria Sanitary District, Foot of Darst St., Peoria 2, Ill.

June 23-26—Minneapolis, Minn.
SMOKE PREVENTION ASSOCIATION. Annual Meeting (Hotel Nicollet). Sec., Frank A. Chambers, 139 North Clark St., Chicago, Ill.

***June 24-26—New York, N. Y.**
EASTERN ASSOCIATION OF FIRE CHIEFS. Annual Convention (Hotel Pennsylvania). Sec., Charles E. Clark, Box 217, Wayne, Pa.

June 24-26—Topinabee, Mich.
MICHIGAN ASSOCIATION OF CHIEFS OF POLICE. Annual Convention (Topinabee Inn). Sec.-Treas., Oscar G. Olander, c/o Michigan State Police, East Lansing, Mich.

June 24-27—Vancouver, British Columbia
CANADIAN FEDERATION OF MAYORS AND MUNICIPALITIES. Annual Conference (Hotel Vancouver). Exec. Dir., Miss Jessica Allan, Mount Royal Hotel, Montreal, Quebec, Canada.

***June 28—Little Falls, N. J.**
AMERICAN WATER WORKS ASSOCIATION—NEW JERSEY SECTION. Summer Meeting. Sec., C. B. Tygert, Box 178, Newark, N. J.

***June 29-July 2—Denver, Colo.**
ASSOCIATED GENERAL CONTRACTORS OF AMERICA, INC. Spring Meeting of the Governing and Advisory Boards (Hotel Shirley-Savoy). H. E. Foreman, 1227 Munsey Bldg., Washington, D. C.

***July 11-12—Durango, Colo.**
COLORADO MUNICIPAL LEAGUE. Annual Convention (Hotel Strater). Sec., D. Mack Easton, University of Colorado, Boulder, Colo.

July 22-24—Pittsburgh, Pa.
PENNSYLVANIA CHIEFS OF POLICE ASSOCIATION. Annual Meeting (Hotel William Penn). Sec., F. B. Titus, Lansdowne, Pa.

July 23-25—Utica, N. Y.
NEW YORK STATE ASSOCIATION OF CHIEFS OF POLICE. Annual Meeting (Hotel Utica). Sec.-Treas., R. W. Morris, Box 203 Capitol Station, Albany 1, N. Y.

July 23-26—Cleveland, Ohio
INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual Meeting (Hotel Statler). Sec., Daniel B. Tierney, 8 Robbins Rd., Arlington, Mass.

July 24-26—Indianapolis, Ind.
INDIANA MUNICIPAL LEAGUE. Annual Convention (Hotel Claypool). Exec. Sec., W. Vincent Youkey, 401 City Hall, Indianapolis, Ind.

Aug. 5-7—Seattle, Wash.
NATIONAL ASSOCIATION OF TAX ADMINISTRATORS. Annual Meeting and Convention (Hotel New Washington). Exec. Sec., Charles F. Conlon, 1313 E. 60th St., Chicago, Ill.

Aug. 15-17—Cedar Point, Ohio
AMERICAN SHORE AND BEACH PRESERVATION ASSN. Summer Meeting (The Breakers). Sec.-Treas., Peter J. Gannon, 1060 Broad St., Newark 2, N. J.

Aug. 19-21—Chicago, Ill.
NATIONAL INSTITUTE OF GOVERNMENTAL PURCHASING, INC. Annual Conference and Products Exhibit (Hotel Stevens). Exec. Dir., Albert H. Hall, 730 Jackson Pl., N.W., Washington 6, D. C.

***Aug. 21-22—Missoula, Mont.**
MONTANA MUNICIPAL LEAGUE. Annual Convention (Hotel Florence). Sec., M. J. Mee, 518 Birch St., Anaconda, Mont.

Aug. 26-28—State College, Pa.
PENNSYLVANIA WATER WORKS OPERATORS ASSOCIATION. Annual Meeting (Pennsylvania State College Buildings). Sec., I. M. Glace, 22 South 22nd St., Harrisburg, Pa.

Aug. 27-30—Boston, Mass.
NATIONAL SHADE TREE CONFERENCE. Annual Meeting (Hotel Statler). Sec.-Treas., L. G. Chadwick, Ohio State University, Columbus, Ohio.

Aug. 28-30—State College, Pa.
PENNSYLVANIA SEWAGE WORKS ASSOCIATION. Annual Meeting (Pennsylvania State College Buildings). Sec., Bernard S. Bush, c/o Department of Public Health, Kirby Health Center, Wilkes-Barre, Pa.

Aug. 29-31—Cedar City, Utah
MUNICIPAL LEAGUE OF UTAH. Annual Meeting (Hotel Escalente). Exec. Sec., Mrs. Lyla Ray, 318 McIntyre Bldg., Salt Lake City 1, Utah.

Sept. 9-11—Savannah, Ga.
AMERICAN WATER WORKS ASSOCIATION—SOUTHEASTERN SECTION. Annual Meeting (Hotel DeSoto). Sec., B. P. Rice, Reconstruction Finance Corp.—Bond Service Division, Healey Building, Atlanta, Ga.

Sept. 12-13—Pittsburgh, Pa.
AMERICAN WATER WORKS ASSOCIATION—WESTERN PENNSYLVANIA SECTION. Annual Meeting (Hotel Roosevelt). Sec., E. P. Johnson, 418 Flannery Bldg., Section 13, Pittsburgh, Pa.

Sept. 12-14—Asheville, N. C.
NORTH CAROLINA LEAGUE OF MUNICIPALITIES. Annual Conference (Hotel Venderbilt). Exec. Sec., Mrs. Davetta L. Steed, North Carolina League of Municipalities, 704 Raleigh Building, Raleigh, N. C.

Sept. 16-18—Chicago, Ill.
AMERICAN TRANSIT ASSOCIATION. Annual Meeting (Palmer House). Gen. Sec., Guy C. Hecker, American Transit Association, 292 Madison Ave., New York 17, N. Y.

Sept. 16-20—Poland Springs, Me.
NEW ENGLAND WATER WORKS ASSOCIATION. Annual Convention (Poland Spring House). Sec., Walter Conroy, 613 Statler Bldg., Boston, Mass.

Sept. 18-20—Traverse City, Mich.
AMERICAN WATER WORKS ASSOCIATION—MICHIGAN SECTION. Annual Meeting (Hotel Park Place). Sec.-Treas., Raymond J. Faust, Division of Water Supply, Bureau of Engineering, State Department of Health, Lansing 4, Mich.

Sept. 18-21—Quebec, Canada
ILLUMINATING ENGINEERING SOCIETY. Annual Convention (Hotel Frontenac). Exec. Sec., A. D. Hinckley, 51 Madison Avenue, New York 10, N. Y.

***Sept. 19—Dickinson, N. D.**
LEAGUE OF NORTH DAKOTA MUNICIPALITIES. Annual Convention. Exec. Sec., Myron H. Atkinson, City Auditor, Bismarck, N. D.

Sept. 20-21—Deadwood, S. D.
SOUTH DAKOTA WATER AND SEWAGE WORKS CONFERENCE. Annual Meeting. Dir., W. W. Towne, Div. of Sanitary Engineering, State Board of Health, Pierre, S. D.

Sept. 22-24—Virginia Beach, Va.
LEAGUE OF VIRGINIA MUNICIPALITIES. Annual Meeting (Hotel Cavalier). Harold I. Baumes, 902 Travelers Bldg., Richmond, Va.

Sept. 22-25—Fort Worth, Texas
AMERICAN PUBLIC WORKS ASSOCIATION. Public Works Congress (Hotel Texas). Exec. Dir., Norman Hebden, 1313 E. 60th St., Chicago 37, Ill.

Sept. 24-26—New Castle, Pa.
PENNSYLVANIA STATE ASSOCIATION OF COUNTY COMMISSIONERS. Annual Convention (The Castleton Hotel). Sec.-Treas., Herbert S. Bolger, Court House, Holidaysburg, Pa.

Sept. 24-27—Boston, Mass.
NATIONAL ASSOCIATION OF ASSESSING OFFICERS. National Conference on Assessment Administration (Hotel Statler). Exec. Dir., Albert W. Noonan, 1313 E. 60th St., Chicago, Ill.

Sept. 26-28—Harrisburg, Pa.
PENNYLVANIA LEAGUE OF THIRD CLASS CITIES. Annual Convention (Penn Harris Hotel). Pres., Walter Grenwood, 320 Municipal Bldg., Harrisburg, Pa.

Sept. 30-Oct. 2—Springfield, Ill.
ILLINOIS MUNICIPAL LEAGUE. Annual Convention (Hotel Leland). Exec. Sec., A. L. Sargent, Illinois Municipal League, 557 So. 40th Street, Springfield, Ill.

***Oct. 2-3—Milwaukee, Wis.**
WISCONSIN CHIEFS OF POLICE ASSOCIATION. Annual Conference (Hotel Schroeder). Sec., Walter H. Wagner, Sheboygan, Wis.

Oct. 3-5—Columbus, Ohio
INSTITUTE OF TRAFFIC ENGINEERS. Annual Meeting (Hotel Deshler-Wallick). Sec.-Treas., Wilbur S. Smith, Strathcona Hall, New Haven 11, Conn.

Oct. 7-9—Toronto, Ontario
CANADIAN INSTITUTE OF SEWAGE AND SANITATION. Annual Meeting (Hotel Royal York). Sec.-Treas., Dr. A. E. Berry, Canadian Institute of Sewage and Sanitation, Parliament Bldg., Toronto, Ontario.

Oct. 7-9—Toronto, Ontario
FEDERATION OF SEWAGE WORKS ASSOCIATIONS. Annual Meeting (Hotel Royal York). Sec., W. H. Wisely, 325-26 Illinois Bldg., Champaign, Ill.

Oct. 7-11—Chicago, Ill.
NATIONAL SAFETY COUNCIL. Congress and Exposition (Hotel Stevens). Pres., Ned. H. Dearborn, 20 N. Wacker Drive., Chicago, Ill.

***Oct. 7-12—Hastings, Sussex, England**
INTERNATIONAL FEDERATION FOR HOUSING AND TOWN PLANNING. International Congress and Exhibition. Congress Officer, 13 Suffolk St., London, S.W.I.

Oct. 9-11—Columbus, Ohio
AMERICAN WATER WORKS ASSOCIATION—OHIO SECTION. Annual Conference (Hotel Fort Hayes). Sec.-Treas., F. P. Fischer, Wallace & Tiernan, 811 Perry Payne Bldg., Cleveland 13, Ohio.

Oct. 14-17—Galveston, Texas
AMERICAN WATER WORKS ASSOCIATION—SOUTHWEST SECTION. Annual Meeting. Sec., L. A. Jackson, Mgr., Little Rock Water Works, Little Rock, Ark.

***Oct. 16-18—Omaha, Nebr.**
LEAGUE OF NEBRASKA MUNICIPALITIES. Annual Convention (Hotel Paxton). Sec.-Treas., C. E. Beals, 310 Continental Bank Bldg., Lincoln, Nebr.

***Oct. 16-18—Atlantic City, N. J.**
PENNSYLVANIA WATER WORKS ASSOCIATION. Annual Convention (Hotel Traymore). Sec.-Treas., E. R. Hannum, 510 Telegraph Bldg., Harrisburg, Pa.

Oct. 21-24—New York City
CIVIL SERVICE ASSEMBLY OF THE UNITED STATES AND CANADA. Annual Conference on Public Personnel Administration (Hotel New Yorker). Acting Dir., J. J. Donovan, 1313 E. 60th St., Chicago, Ill.

Oct. 23-25—San Francisco, Calif.
AMERICAN WATER WORKS ASSOCIATION—CALIFORNIA SECTION. Annual Conference (Hotel

(Continued on page 137)

* *First appearance on this page.*

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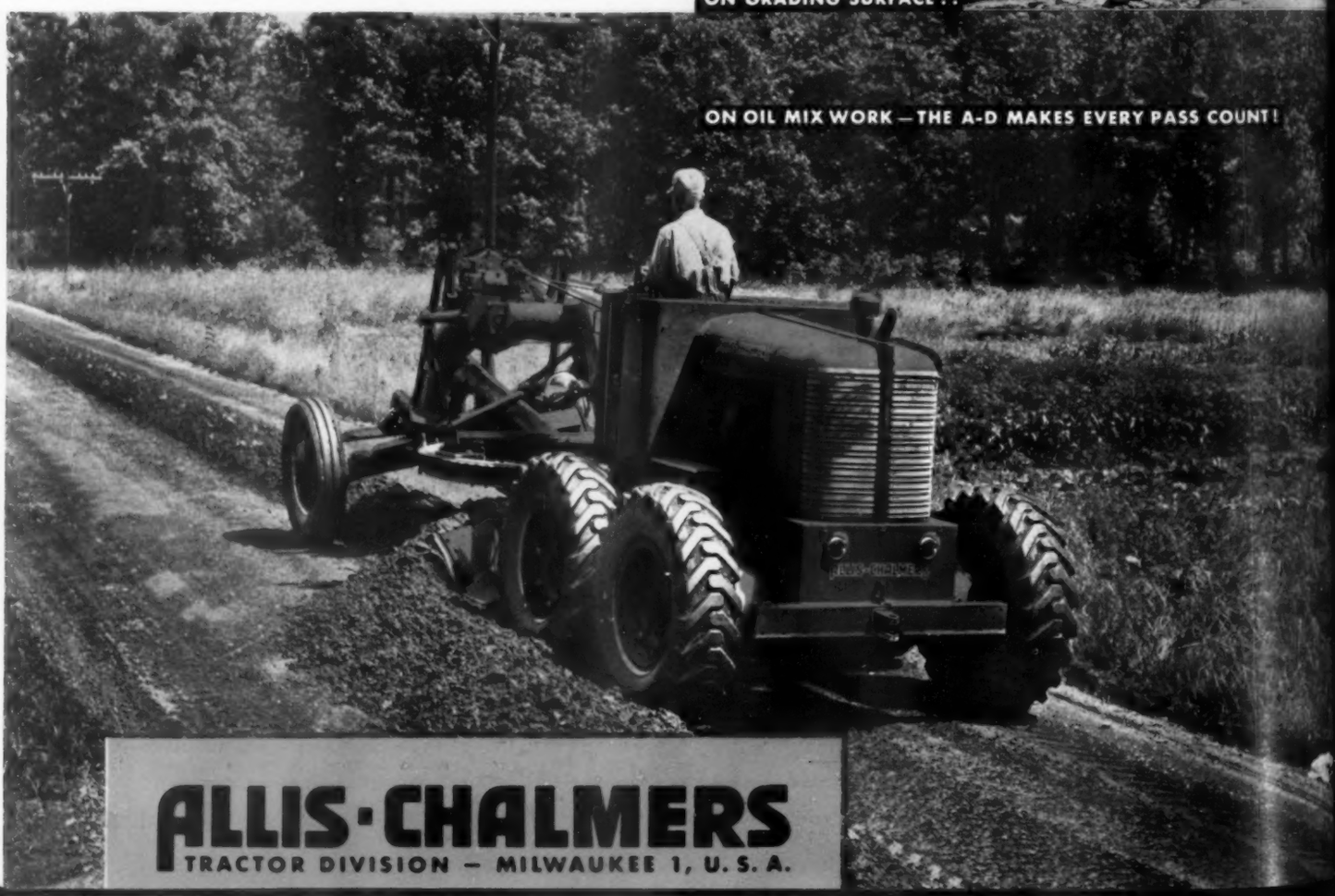

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ALLIS-CHALMERS

TRACTOR DIVISION — MILWAUKEE 1, U. S. A.

Municipal Auditorium Serves Minneapolis Well

(*Continued from page* 104)

tion city of the Northwest. It is conveniently located within a few blocks of the city's leading hotels and the theatrical and business district. The auditorium is now booked almost solidly for 1946 and through May in 1947.

Additions Planned

Many of the nation's leading orators, political leaders, and church dignitaries have addressed audiences in the auditorium. Its service, however, is handicapped by the fact that it does not have a small auditorium or assembly rooms. Plans are now being discussed to add wings at each end of the present structure in order to provide such accommodations for which there is a growing demand. The estimated cost of these wings is $800,000, and their use is expected to increase revenue because at the present time many requests for use have to be turned down because the big auditorium is too large for the particular meeting or concert.

The auditorium has been a profitable investment for the city, enabling it to entertain visitors and provide an attractive meeting place for its own citizens. Its use is so general and the service it provides so popular that it has become the city's real community center.

Distribution Does It

(*Continued from page* 79)

even to county buildings. This practice was inaugurated when the system was first constructed and has been a great aid in financing the department.

The present system has 250 miles of pipe varying in size from 4 to 36 inches in diameter. It has 1,100 hydrants and approximately 19,000 services. For all distribution mains, the county uses cast iron pipe with Hi-Co lining and caulked with Leadite. This combination, giving a high coefficient and a tight joint that stays tight has been an important factor in the construction and maintenance of the system.

Small City Weathers Its Sanitation Emergency

(*Continued from page* 96)

intendent Hurst explains, were easily cared for by one closed-body Elgin truck. This makes the rounds once a week.

Both water and sewerage are financed through earnings from the water rates; in fact, Superintendent Hurst would prefer to call them water and sewage rates since they both work together.

The water supply and sewage treatment projects together ran to approximately $450,000. Of this the sewage treatment plant accounted for approximately $200,000 and the water, $250,000. The sewage treatment works were financed by an outright grant from the government; water supply received a 50% grant.

Simplified Lubrication For Street Machinery

(*Continued from page* 102)

standard temperatures. Actually, however, when the temperature drops, oils become heavier or thicker and greases become harder or stiffer. It is necessary, therefore, to use lower numbered grades for low temperatures and higher grades for high temperatures.

Rustproofing—Before being placed in storage machinery should be thoroughly lubricated. Retouch any places where the paint has worn off. Unpainted exterior surfaces should be coated with Rustproof Compound.

Specially treated engine preservative oils are available, while some of the heavy duty engine oils have excellent rustproofing characterictics. One of these should be used for engines, gear boxes, and other enclosed oiling systems and sealed before storage.

Illinois Voters Reject Bond Issues

STAGING a minor revolt against high construction prices and higher taxes, Illinois voters recently defeated decisively three major bond issues which would provide funds for new construction.

Peoria, both city and county, registered "No" to a $2,460,000 bond issue to erect a new county court house and to $1,220,000 for the erection of a new city hall. Officials report that they need both badly and had expected approval from the voters. The bond issues would have meant a 12½ cent increase per $100 assessed valuation from 1946 to 1965.

The Springfield election involved the historic old state capitol, scene of many of Lincoln's early activities. A new court house would have made it possible for the present building to be restored as a historic shrine yet Sangamon County voters voted by a decisive majority against bonding the county for $1,500,000 to effect this construction.

In a like manner, McLean County and the city of Bloomington defeated bond issues which would provide the necessary funds to blacktop unpaved highways in the county and to create an airport authority and construct facilities.

Conventions—When and Where

(*Continued from page* 135)

Whitcomb.) Sec., Ray L. Derby, Box 3669—Terminal Annex, Los Angeles 54, Calif.

Oct. 28-30—Pittsburgh, Pa.
ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA. Annual Water Conference (Hotel William Penn). Conference Chairman. H. M. Olson, Hotel William Penn, Pittsburgh, Pa.

***Nov. 7-9—Atlantic City, N. J.**
AMERICAN WATER WORKS ASSOCIATION—NEW JERSEY SECTION. Annual Meeting (Hotel Chelsea). Sec., C. B. Tygert, Box 178, Newark, N. J.

Nov. 7-9—Omaha, Nebr.
AMERICAN WATER WORKS ASSOCIATION—MISSOURI VALLEY SECTION. Annual Convention (Hotel Fontenell). Sec.-Treas., M. P. Hatcher, Dir., Water Department, City Hall, Kansas City, Mo.

Nov. 11-13—Raleigh, N. C.
AMERICAN WATER WORKS ASSOCIATION—NORTH CAROLINA SECTION. Annual Convention (Hotel Sir Walter Raleigh, Raleigh, N. C.).

Nov. 11-13—Raleigh, N. C.
NORTH CAROLINA SEWAGE WORKS ASSOCIATION. Joint Meeting with North Carolina Section—AWWA (Hotel Sir Walter Raleigh). Sec.-Treas., Geo. S. Moore, North Carolina Sewage Works Association, Box 125, Albemarle, N. C.

Nov. 11-13—Philadelphia, Pa.
NATIONAL MUNICIPAL LEAGUE. National Conference on Government (Hotel Bellevue-Stratford). Exec. Dir., Alfred Willoughby, National Municipal League, 299 Broadway, New York City.

Nov. 11-14—Miami, Fla.
INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION, INC. Annual Convention. Sec., Irvin Shulsinger, International Municipal Signal Association, Inc., 8 E. 41st St., New York City.

Nov. 11-15—Cleveland, Ohio
AMERICAN PUBLIC HEALTH ASSOCIATION. Annual Meeting (Public Auditorium). Exec. Sec., Dr. Reginald W. Atwater, 1790 Broadway, New York 19, N. Y.

***Nov. 15-17—Green Bay, Wis.**
AMERICAN WATER WORKS ASSOCIATION—WISCONSIN SECTION. Annual Meeting (Hotel Northland). Sec., L. A. Smith, Madison, Wis.

Nov. 17-20—St. Louis, Mo.
AMERICAN INSTITUTE OF PARK EXECUTIVES. Annual Meeting (Hotel Jefferson). Exec. Sec., Dave Hovey, P. O. Box 422, Rockford, Ill.

Nov. 17-20—Chicago, Ill.
AMERICAN MUNICIPAL ASSOCIATION. Annual Conference (Hotel Congress). Exec. Dir., Earl D. Mallery, 1313 E. 60th St., Chicago, Ill.

***Nov. 20-22—New York City**
NEW JERSEY STATE LEAGUE OF MUNICIPALITIES. Annual Conference (Hotel New Yorker). Exec. Sec., James J. Smith, 808 Trenton Trust Bldg., Trenton, N. J.

***Dec. 2-4—Harlingen, Texas**
LEAGUE OF TEXAS MUNICIPALITIES. Annual Convention (Hotel Reese-Wil-Mond). Exec. Dir., E. E. McAdams, League of Texas Municipalities, 2220 Guadalupe St., Austin, Texas.

* *First appearance on this page.*

END TROUBLES HERE

"UNDER-THE-HOOD" PRIMER, YOUR ENGINE HEAT PREVENTS *FROST and FREEZING*

Dependability . . . assurance of positive action . . . nothing means more to the firemen. Years of research gave BARTON-AMERICAN the answers for solving the troubles of ordinary primers. Compare a BARTON-AMERICAN VACUUM PRIMER with old-fashioned rotary or exhaust type primers. BARTON-AMERICAN Primers do a better job **ALL OF THE TIME** . . . meeting all Underwriters' priming-time requirements. Has positive automatic safety trap which prevents flooding of engine by water.

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PUBLIC SERVICE MODEL

The new Parsons 221 Trenchliner, public service model in the Parsons line of trenchers, sidesteps surface obstruction as close as 10" to either side of the projected trench. Boom shifts from side to side across entire width of boom carriage. Easy to shift, because it rides smoothly on big diameter rollers. Arc type spoil conveyor reaches up 6'9", easily dumps into 1½ ton trucks. Telescoping ladder type boom can dig over and under obstructing pipes in trench, virtually eliminating hand work.

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Municipal and Civic Publications

Better Housing for America

BREAKING THE BUILDING BLOCKADE.—*By Robert Lasch. University of Chicago Press. Chicago 37, Ill.* 1946. 316 *pp.* $3.00.

Challenging study of the present housing crisis by an author who feels that "America will have good housing only when the people demand it." Mr. Lasch points out the deficiencies of our present living conditions and the many barriers to decent low cost housing that have developed. He describes the growing danger of blight and urban decay and warns against another "boom-and-bust cycle" which may temporarily cover up these dangers. The boom cycle and the crash which follows, he feels, arises from our failure to realize that housing is a social and not merely an individual problem, and he feels that to achieve adequate housing we must seek it as a group.

Mr. Lasch outlines a unified national housing program which calls for group action. He describes how the citizen, his business, municipal government, and the federal government can work toward the goal of fifteen million houses in ten years at a unit cost which the individual can afford to pay. To achieve this goal he advocates the joint assumption of collective responsibilities, by mixed private and public enterprise.

Study of Public Personnel Relations

EMPLOYEE ORGANIZATIONS IN THE PUBLIC SERVICE.—*National Civil Service League, 67 West 44th Street, New York City.* 31 *pp.* 25c.

Report of the National Committee on Post-War Civil Service Problems of the National Civil Service League. The committee attempts in this report to present the fundamentals involved in public personnel relations and analyzes the place of employee organizations in the public service. The League recognizes that public employees have grievances just as do those in private organizations and feels that it is the responsibility of government to establish machinery to assure them justice. The pamphlet is written as a series of questions and answers; the questions that public officials and employees might face and the answers which the committee has arrived at.

Regulation for Temporary Housing

MUNICIPAL REGULATION OF TEMPORARY HOUSING AND PREFABRICATED CONSTRUCTION.—*By Roy H. Owsley. Report No. 160. American Municipal Association, 1313 East 60th Street, Chicago, Ill.* 1946. *Mimeo.* 33 *pp.* $1.

Pamphlet dealing with the problem of standards of temporary housing with particular references to the veteran's housing program and the precedent established by wartime housing. The author calls attention to the fact that the current problem is not limited to special defense areas but is nationwide. A general discussion of the legal aspects of the problem and the various emergency building codes which offer a solution is followed by specific reference to the codes of several cities. These references are presented in Appendices A. through K. at the end of the genral analysis of the problem and should be of value to cities all over the country that are faced with the housing crisis.

Building Code for New Mexico

UNIFORM BUILDING CODE FOR THE STATE OF NEW MEXICO.—*Vol. I* 1945. *Contractor's License Board, 123 West Palace Ave., Santa Fe, New Mexico. Index.* 322 *pp.*

Compact presentation of the New Mexico Building Code, which is the Uniform Building Code of the Pacific Coast Building Officials Conference. The pamphlet is divided into three parts dealing with administration of the code, definitions and abbreviations, and the requirements based on occupancy. The text is printed with marginal notes to facilitate reference and a complete alphabetical subject index is included.

Law Research Reports

MUNICIPAL LAW RESEARCH REPORTS.—*National Institute of Municipal Law Officers.* 730 *Jackson Place, N.W., Washington, D. C.* 1946. 16 *pp.*

List of all reports of the National Institute of Municipal Law Officers available today. About once a month the Institute distributes free to member cities copies of special reports containing the results of research into problems of current municipal interest. Court decisions are studied, model ordinances based on judicial and legislative limitations are included, and the working experiences of various cities presented. This pamphlet is an index of the reports that still remain in print and are available and includes prices to nonmembers.

Picture-Writing Textbook

THE TECHNIQUE OF THE PICTURE STORY.—*By Daniel D. Mich and Edwin Eberman. McGraw-Hill Book Company, Inc., New York.* 1945. *Illus.* 239 *pp.* $3.50.

Ingenious source and reference book on the techniques and procedures of picture-writing, one of the most recent advances in modern journalism. This pioneer textbook in the field was written by two who have long been instrumental in the development of this new type of journalism—Mr. Mich is the executive editor of *Look* and Mr. Eberman is the art director for the same magazine. They conducted a new course in the "technique of the picture story at New York University in the fall of 1944 which became the basis for this book. This volume is made up entirely of pictures with accompanying text and illustrates in itself the goal of picture-writing, "the integration of pictures and running commentary." It shows graphically how periodicals have devised a technique of blending pictures with words to enhance their meaning.

Digest of Housing Information

HOUSING ABSTRACTS.—*Purdue Research Foundation. Purdue University, Lafayette, Ind. Vol. I, No. 1. April* 1946. 8 *pp.*

Monthly reference guide to articles on housing and related fields. The booklet points out in its initial appearance that it does not hope to be comprehensive or to provide complete coverage of the literature which appears daily in the field. The abstracts are intended to point out a few of the articles which might otherwise be overlooked. They are grouped under seven general headings and represent literature dealing with fundamental trends as well as present needs, legal items, and engineering news. The complete list of periodicals abstracted in each issue appears on the inside front cover.

Source Book on Social Foundations

AMERICAN FOUNDATIONS FOR SOCIAL WELFARE—*By Shelby M. Harrison and F. Emerson Andrews. Russell Sage Foundation, 130 East 22nd Street, New York City.* 1946. *Directory of Foundations.* $2.00. 249 *pp.*

Reference book on social welfare foundations throughout the country. The book not only lists and describes 501 foundations but also describes briefly the history, organization, resources, fields of activity, and general trends of foundations in general. The historical growth of foundations is traced and various types of foundations described. A valuable section devoted to the organization and administration of foundations should be of interest to young foundations and those interested in their growth.

The descriptive directory which follows the general discussion is arranged in alphabetical order with short helpful paragraphs covering purpose and activities, capital assets, and expenditures. A classified list of foundations and a listing according to geographical distribution is also included.

Plans for Small Hospitals

THE MODERN SMALL HOSPITAL AND COMMUNITY HEALTH CENTER.—*Edited by Alden B. Mills and Everett W. Jones. The Modern Hospital Publishing Co., Inc. Chicago, Ill.* 1946. *Illus.* 138 *pp.* $7.50.

Plans submitted in the 1944 competition conducted by *The Modern Hospital* accompanied by discussions of the problems of financing, planning, building, and operating the small hospital and health center. The winning plans are designed for communities scattered throughout the country and take into consideration not only the size of the community, but also the economic problems of the region, makeup of the community, and geography of the area.

Each plan includes a statement by the contestant explaining the design and the editor's statement analyzing it. The statements accompany sketches and architects plans for the proposed hospitals. All of the plans represent a modern approach to the problem of better health and advocate a close integration of all community health activities.

Aviation Development Program

NATIONAL POLICY FOR AVIATION — *National Planning Association, 800 21st Street, N.W. Washington, D. C. Planning pamphlets Nos. 51-52. March* 1946. 68 *pp.* 25c.

Final report of the Advisory Committee on the Aircraft Industry of the National Planning Association including recommendations for an integrated national program for the future development of aviation. The report is the result of careful study of the three main aspects of aviation; aircraft production, air forces, and air commerce. The pamphlet stresses the importance of American aviation policies to world security and national economic development and proposes an extensive research and educational program to improve and expand aviation production and use in this country.

Photographic Survey of Modern Home Planning

IF YOU WANT TO BUILD A HOUSE.—*By Elizabeth B. Mock. Museum of Modern Art, 11 West 53d Street, New York, N. Y.* 1946. *Illus.* 96 *pp.* $2.00.

Excellent analysis for the layman of the problems in home planning, construction, and design which face the individual builder. The author discusses the advantages and disadvantages of modern design from the point of view of the prospective builder and illustrates her text with one hundred and sixteen handsome photographs of existing modern houses. The book makes a plea for a fresh approach to the problems of building and points out the unlimited variations of plan and appearance that are possible in the modern house.

In addition to the photographs, the text is cleverly interpreted by a number of cartoons which point out satirically the pitfalls the builder and his architect are apt to encounter. These cartoons, like the text, stress that "architecture is an attitude toward life, an approach which starts with living people and their needs, physical and emotional, and tries to meet them as directly as possible."

Half a Century of Civic Activity Reviewed

FIFTY YEARS OF CIVIC HISTORY, 1895-1945.—*By H. Marie Dermitt. Civic Club of Allegheny County, Pittsburgh, Pa.* 1946. 59 *pp.*

Chronology of the activities of the Civic Club of Allegheny County over a period of fifty years in various fields of city government. The booklet is arranged according to topics assigned to the civic committees and contains the history of the members' action from year to year in studying civic problems, recommending solutions, stimulating community interest.

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Book of Standards for Fire Protection

EXTINGUISHING AND ALARM EQUIPMENT — *National Fire Codes. Vol. IV. National Fire Protection Association, 60 Batterymarch Street, Boston, Mass.* 1946. 735 *pp.* $3.00.

Comprehensive volume containing forty-seven standards of the National Fire Protection Association for extinguishing and alarm equipment. The book deals with automatic sprinklers and water supply, fire extinguishers, carbon dioxide, foam and water spray extinguishing systems, municipal and rural fire apparatus, municipal and private fire alarm equipment, private fire brigades, watchman service, and other related features of supervision and maintenance.

The history of each standard is given as well as information on its availability in pamphlet form. The standards, in general, specify the method of installation of the various kinds of equipment, but do not attempt to rule on the conditions under which various types of protection should be used or to judge the relative merits of different equipment.

Building Code for One- and Two-Family Dwellings

NEW JERSEY CODE OF MINIMUM CONSTRUCTION REQUIREMENTS FOR ONE- AND TWO-FAMILY DWELLINGS—*New Jersey Department of Economic Development, Division of Planning and Engineering, Trenton, N. J.,* 1946. *Mimeo.* 24 *pp.* (*See page 92 of this issue of* THE AMERICAN CITY.)

Pamphlet suggesting a remedy for irresponsible building on the part of developers who, taking advantage of the increased demand for houses, build inferior structures in suburban areas where adequate building codes are not provided. It consists of a model code, to be sanctioned by the state code and adopted by a municipality by reference to the state code. Such a code could be a minimum code needed to secure safe, sanitary, and economical construction and the municipality would reserve the right to add other requirements. The code which is presented in this pamphlet is intended as such a minimum code to be adopted by communities wishing to follow that practice.

Housing Expediter's Program

VETERANS' EMERGENCY HOUSING PROGRAM.—*Statement by Wilson W. Wyatt before the Committee on Banking and Currency, United States Senate. National Housing Agency, Washington, D. C.* 1946. *Charts.* 25 *pp.*

Mr. Wyatt's report on the vital need for the Veterans' Emergency Housing Program as he presented it before the Senate committee. The report is accompanied by forceful charts illustrating the great need for immediate and adequate action in the housing field. To those who say that the program is fancifully sweeping, Mr. Wyatt replies that measured by the veterans' housing needs, the whole program is hopelessly conservative. He points out also that the veterans will measure the program against what they know we can produce in peace, since they have seen what we could produce in war. The situation he pictures calls for immediate action.

National Tax Association Conference

PROCEEDINGS OF THE THIRTY-EIGHTH ANNUAL CONFERENCE ON TAXATION.—*Edited by Raymond E. Manning. National Tax Association. Washington, D. C.* 1945. *Index.* 344 *pp.*

A "Conference-in-print" containing major papers which were to be delivered at the annual taxation conference scheduled for October 1945. The conference was cancelled due to travel restrictions. The volume begins with a discussion of recent legislation, literature, and court decisions concerning taxation. Federal-state relations are analyzed in Part II; state and local tax problems presented in Part III; and the study concludes with a section on federal tax problems. Tax exemption, business taxation, agricultural property assessment are among the topics presented.

Research Into Land Titles

LAND TITLE ORIGINS: A TALE OF FORCE AND FRAUD.—*By Alfred N. Chandler. Robert Schalkenback Foundation, 50 East 69th street, New York,* 1945. *XVI,* 550 *pp.* $3.

Here are the fruits of ten years of research by an economist now in his 88th year. Mr. Chandler holds unwise land policies mainly responsible for inadequate housing, recurring periods of unemployment, and resulting social unrest, leading to strikes and war.

Although devoted mainly to broad problems of the public domain, this book contains numerous references to municipal conditions. For example:

"The citizens of Los Angeles are today barred from much-needed recreation beaches because they are privately owned through a grant from the King of Spain. Mr. and Mrs. John Doe and all the little Does look over the fence, longingly, at the stretch of smooth sand and sounding surf, but they may not play there, because long ago, the king of a far-away, and now somewhat decrepit, country said that the curving shore with its tawny strand was to belong to Senor So-and-So, and to his heirs and assigns forevermore."

"Nicholas Longworth, a young lawyer, in the early days of Cincinnati accepted two copper stills as a fee. These he traded for a thirty acre tract, now in the center of that city, which fifty years later was appraised as worth $2,000,000."

"Land Title Origins" does not advocate nationalization of land or nullifying private titles. It makes an earnest plea for economic common sense in a matter which concerns the peace of the world, and the social welfare of the people.

How to Organize for Group Study

ATOMIC ENERGY: WHAT BUSINESS IS IT OF OURS?—*Ivah Deering. Woman's City Club of Cincinnati, Ohio.* 1946. 45 *pp.* 25c.

Study of the action of the Committee on World Cooperation of the Cincinnati Woman's City Club in planning discussion groups and projects concerned with the problems of the control and use of atomic energy. The booklet is designed as an example of group activity in study of the problem and outlines the findings, analysis, and conclusions of one committee organized to suggest constructive action of the individual citizen in the various groups which he is a part of. The pamphlet is written effectively in outline form and is divided into two parts; the problem to be faced is first discussed and is followed by the method or pattern of committee procedures in acting on the conclusions. Book lists on atomic energy and current international affairs as well as references on group discussion are included.

Borough Birthday Report

OUR BOROUGH.—*A Fiftieth Anniversary Report. Narberth Borough Council, Narberth, Pa.* 1945. *Illus.* 64 *pp.*

Record of Narberth's growth in the last fifty years. The booklet commemorating the fiftieth year of borough history presents the background of the town, highlights of its development, and a report of current city government, services, finances, education,, etc. Dedicated to the citizens, the report presents data "from which an informed public opinion may result." The account of the community's growth is interestingly illustrated with pictures and maps of the town, past and present.

Building Code for Colorado

UNIFORM BUILDING CODE OF COLORADO.—*Prepared by the Tri-County Regional Planning Commission. 1275 Sherman St., Denver, Colo.* 1945. *Mimeo.* 75 *pp. Appendix.*

Code available for adoption in any county or municipality in Colorado. The code follows the principle that the requirements and restrictions relating to construction be stated in as broad terms as consistent with the attainment of public safety and health. The booklet outlines the administration of the code, duties of the building inspector, enforcement and various standards of building and occupancy. A useful appendix outlines complete procedure for an unincorporated area to become eligible for the establishment of the uniform building code.

Report on Business Development for Saint Paul

REPORT AND RECOMMENDATIONS.—*By Central Business Development Committee. Saint Paul, Minn.* 1946. 36 *pp.*

Survey and recommendations based on economic conditions and the necessity for general improvement in Saint Paul. The report outlines traffic improvement plans which would make the business area easily accessible. Stress is laid on the planning of a convenient, attractive, and comfortable downtown area designed to permit unrestricted business growth and expansion. Traffic terminals, street car and bus service, parking problems, and various highway projects are discussed at length.

Comprehensive Airport Program

AN AIRPORT PROGRAM FOR THE COUNTY OF LUCAS AND THE CITY OF TOLEDO, OHIO.—*Prepared for the Toledo and Lucas County Plan Commissions by the Airport Div., of Giffels & Vallet, Inc. L. Rossetti, Detroit, Mich.* 1946. 47 *pp. Appendix.*

Illustrated report covering the 3,600 square miles which make up the Toledo Transportation Area. The report has been published in an oversized spiral-bound booklet which contains graphs, charts, and handsome maps used in the analysis of the problem. Demands of commercial and private air traffic are studied with careful attention to potential air routes and centers. Existing facilities in the area are examined and recommendations for additional airports are illustrated with plans, evaluation of the sites concerned, and estimates of the engineering and construction costs involved. The study concludes with recommendations which urge the organization of a city-county airport authority to develop, finance, and operate airport facilities in Lucas County.

Population Trends and Cities' Well-Being

EFFECTS OF POPULATION GROWTH AND NON-GROWTH ON THE WELL-BEING OF CITIES.—*By Victor Roterus. Reprinted from American Sociological Review, Vol. XI, No. 1, February* 1946. 7 *pp.*

An analysis of the effect of population changes on the future development of cities. In making this study, Mr. Roterus selected two groups of cities; nine growing cities and nine non-growing cities. In each case the metropolitan area of the city followed the same population trend. The effects of the changes are carefully measured in relation to employment activities, municipal government, population composition, and physical appearance of the cities. The author points out that the controlling factor of city growth in the future is in-migration which, in turn, will depend on the opportunities which the city offers. The city itself can control its growth or decline and Mr. Roterus' analysis shows the effect of both factors.

Other Reports Received

LANCASTER, PA.—*A Comprehensive Municipal Plan.* By Michael Baker, Jr. 1945. Illus. Maps. 320 pp.

LEXINGTON, KY.—Budget for 1946 and Audit Report for 1945. 1946. Charts. 82 pp.

MINNEAPOLIS-SAINT PAUL, MINN.—Twelfth Report of Minneapolis-Saint Paul Sanitary District. 1944. Illus. 87 pp.

OAK PARK, ILL.—Annual Report of Department of Public Works. 1945. Charts. Mimeo. 67 pp.

SAINT LOUIS, MO.—Seventy-Sixth and Seventy-Seventh Annual Reports of Board of Commisisoners Tower Grove Park. 1944-46. 13 pp.

SPOKANE, WASH.—Annual Report of City Auditor. 1946. Tables. 101 pp.

TOLEDO, OHIO—Annual Report of Division of Streets. 1945. Mimeo. 122 pp.

YAPHANK, LONG ISLAND—Report of the Suffolk County Mosquito Extermination Commission. 1945. Illus. 17 pp.

NEW GMCs for Public Utility Use

WAR-PROVED and IMPROVED FOR 1946

- Powerful, economical "Army Workhorse" engines of Valve-in-Head design with Tocco-hardened Crankshafts, Airplane type "Durex" Main Bearings, Heat-resisting Exhaust Valves with improved Valve Seat Inserts, Positive Crankcase Ventilation, Turbo-Top Pistons and Full Pressure Lubrication through Rifle Drilled Connecting Rods.

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New GMCs offer you the most in public utility truck value in a most complete selection of models. There are pick-ups in several sizes for light hauling and emergency work. There are conventional and cab-over-engine models in tonnage ranges and chassis options to accommodate every kind of special installation and repair equipment. And there are heavy duty gasoline and diesel powered chassis for pole hauling and setting, garbage disposal, fire equipment, all types of civic service and construction. It will pay you to investigate GMC. For, whatever your hauling requirements . . . from ½ to 20 tons . . . you'll find a war-proved, improved GMC truck ideally suited to each individual job.

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News and Illustrations

Items of Interest to City, Town and County Officials and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

Where to Use Portable Belt Conveyors

One of the Haiss troughing conveyors loading gravel into a truck in preparation for work to be done on county roads in northern New Jersey.

The Haiss Challenger troughing conveyor is designed to handle loose materials of an abrasive character, including ashes, cement, chemicals, crushed stone, sludge or fertilizer, gravel, sand, and wet concrete. The machine ranges in size from 20 to 60 feet and has 16-, 20-, and 24-inch belts. If the jobs require placing large volumes of concrete, a heavy-duty machine of the troughing-belt type should be selected.

To handle bags, packages, and similar items, the company recommends the Haiss Portable Flat Belt Cargo conveyor which is furnished with or without cleats. It may be used also to convey plaster and fiber board in sheets.

To handle bricks, tile, or other sharp-edged or abrasive objects that may damage rubber belting, the company offers the Portable Wire Mesh Belt conveyor equipped with a standard or special barge-unloading type chassis.

To handle coal, either anthracite or bituminous, Haiss recommends the "Coal Special" conveyor. It can be used to unload hopper-bottomed cars, to build piles, or to load trucks.

Haiss also recommends the "Motomove" chassis, a self-propelling unit, for use in paved yards or on firm ground. The "motomove" can be fitted either to the belt or drag conveyor.

A new catalog, #1245, issued recently by George Haiss Mfg. Co., Inc., 141-144th Sts. and Canal Pl., New York 51, N. Y., gives technical details on each.

Lime Barrier Aids Water Tank Protection

By sprinkling the floor of a steel water tank with lime, one can materially reduce the cost of its cathodic protection against corrosion. This method is recommended by Electro Rust-Proofing Corp., Dayton 10, Ohio, particularly in cases where the corrosion environment requires a high protective current density.

The company recommends the use of the barrier in tanks, standpipes, or reservoirs where the floor area is more expansive than the sidewall area; or where the tank diameter is over 30 feet. The limestone need not be over ⅛-inch thick, and will act as a barrier against attack from the dissolved oxygen in the water on the exposed floor areas. Limestone has a tendency to precipitate out in the form of a calcium coating, thereby reducing the current density requirements.

The protective deposit of limestone placed in the tank is semi-permanent and requires infrequent replacement after many years of use. The initial cost of the limestone and the cost of placing it can be a part of the original cathodic system cost or the material can be placed in the tank by the tank owner at his own convenience.

The company states that experimental installations at the Dorr Company laboratory, together with hundreds of installations in the mid-west in tanks storing high calcium waters, and subsequent field experience with limestone on floor areas in conjunction with the Electro-Rust-Proofing system of cathodic protection have shown the efficiency of the method and the substantial savings it effects.

Cities Report Success with Water Leak Detector

Wakefield, Mass., unable to locate a troublesome water leak in its business section, borrowed a Globe Geophone Leak Locator from the Globe Phone Mfg. Corp., Reading, Mass., and with their own operators, who had no previous experience with it, located not only that leak but two other bad leaks in a near locality in less than 24 hours.

Joliet, Ill., reports that following a water leak survey the city purchased a Geophone and discovered one 12-inch line causing a waste of one mgd, leaks in two 6-inch, and in two 4-inch lines, as well as many leaky services.

Many other water, sewerage, and public works departments are making good use of the Geophone detector to detect underground leaks which are only partly evident or have not appeared at all on the surface. Water department officials find it is possible to prevent water main bursts with resulting damage and interruption of service.

The Geophone leak locator works on the seismograph principle. Mechanically operated, it consists of two discs which are placed on the ground some two or three feet apart, and, by simply moving the device up and down a street or following a known water line, any existing leaks will be detected by the Geophone. The spot will be where the sound comes in loudest.

An operator uses the Globe Geophone to locate a water leak. By placing the two discs on the ground two or three feet apart and moving the device up and down a street or following a water line, a leak can be easily tracked down.

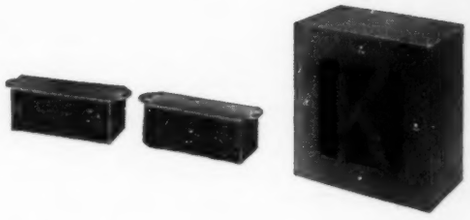
KAAR INSTANT HEATING MOBILE FM

Now available! An FM Radiotelephone with a truly NATURAL voice quality!

New KAAR FM radiotelephones offer an improvement in tone quality which is suprising to anyone who has had previous experience with mobile FM equipment. The over-all audio frequency response through the KAAR transmitter and receiver is actually within plus or minus 5 decibels from 200 to 3500 cycles! (See graph below.) This results in vastly better voice quality, and greatly improved intelligibility. In fact, there is appreciable improvement even when the FM-39X receiver or one of the KAAR FM transmitters is employed in a composite installation.

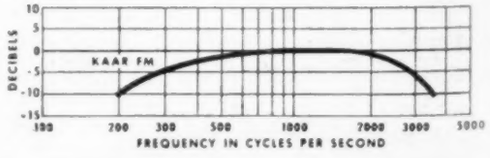
KAAR FM transmitters are equipped with instant-heating tubes, thus making it practical to operate these 50 and 100 watt units from the standard 6 volt ignition battery without changing the generator. Inasmuch as standby current is zero, in typical emergency service the KAAR FM-50X (50 watts) uses only 4% of the battery current required for conventional 30 watt transmitters. Battery drain for the KAAR FM-100X (100 watts) is comparably low.

For full information on new KAAR FM radiotelephones, write today for Bulletin No. 24A-46.



KAAR LOUD SPEAKER, remote controls for transmitter and receiver (illustrated above) and the famous Type 4-C push-to-talk microphone are among the accessories furnished with the equipment.

IMPROVED OVER-ALL FREQUENCY RESPONSE THROUGH KAAR FM TRANSMITTER AND RECEIVER



KAAR ENGINEERING CO.
PALO ALTO • CALIFORNIA

KAAR ENGINEERING CO

Trucks for Road Maintenance Now in Production

FWD's new 1946 model HG all-purpose highway construction and maintenance truck, built with a clearance of 22½ to 24 13/32 inches between the low point of the transfer case and the ground.

The new 4-ton FWD model HG all-purpose highway construction and maintenance truck is in mass production. This truck is designed to mount such optional equipment as body, hoist, and under-body blade for general highway maintenance, and snow plow fittings for winter work. A clearance of 22½ to 24 13/32 inches, depending on tire size, is provided between the low point of the transfer case of the truck and the ground, assuring ample room for mounting under-body scrapers.

The FWD five-speed transmission used in this model provides constant mesh, helical gears in 3rd, 4th, and 5th speeds. Power is transmitted to the front and rear drive shaft through the shock absorbing silent chain drive and the fully compensating center differential which may be locked from the cab of the truck for tough going.

Axles of advanced engineering design have full-floating axle shafts, relieved of all load carrying strains. Ring gears and pinions, interchangeable between front and rear axles, are matched for extra heavy-duty service and smooth, quiet operation. The six-cylinder engine develops 98 bph and has a torque of 270 pounds.

This Model HG grades roads and shoulders, cleans ditches, hauls men and material, pulls graders and scarifiers, transports heavy equipment, plows snow, and performs over fifty other road maintenance jobs. Further information can be secured from The Four Wheel Drive Auto Co., Clintonville, Wis.

Two New Additions to Staff of Permutit Co.

H. L. Bechner and A. D. Way have been appointed technical manager and chief mechanical engineer respectively of The Permutit Co., 330 W. 42nd St., New York, N. Y., according to an announcement by H. W. Foulds, president.

In his new capacity Mr. Bechner will be responsible for the company's technical policy on the application, guarantee, and performance of its products including zeolites, ion exchangers, deaerators, chemical feeds, de-gasifiers, and precipitation equipment. He will also serve as chairman of the engineering committee.

Mr. Way, as chief mechanical engineer, will administer the engineering department and supervise mechanical design and layout of the equipment.

New Chief Engineer for Sterling Engine Co.

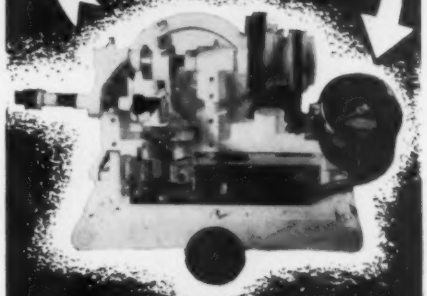
B. Gordon Valentine, well-known designer of gasoline and diesel engines, has been appointed chief engineer of the Sterling Engine Co., Buffalo, N. Y., according to a recent announcement by Addison F. Vars, president of the company.

B. Gordon Valentine

Mr. Valentine received his early technical training at St. Andrews University in Scotland where he was graduated in 1921. His professional career has been devoted entirely to the design and application of internal combustion engines, particularly diesel engines, for stationary, marine, locomotive and tractor installation. Prior to joining the Sterling Engine Co. in September of last year, Mr. Valentine had been employed by Wm. Beardmore & Co., Scotland; Bethlehem Shipbuilding Corp.; Ingersoll-Rand Co.; Cooper-Bessemer Corp.; and John Deere Tractor Co.

An announcement also was made that the New York office of the Sterling Engine Co., formerly located at 900 Chrysler Bldg., has been moved to 401 Fourth Ave., New York 16, N. Y., where all sales and service contacts for the eastern territory will be handled. Showroom facilities will be used to exhibit marine and industrial engines.

IT'S THE TACHOMETER THAT COUNTS



for A-C-C-U-R-A-T-E Chemical Feeding

VAR-I-FEEDER
"Says It With Numbers"

Serves in
- Alum Feeding
- Caustic Dosage
- Hypochlorination
- Aqua Ammoniation
- Soda Ash Treatment
- Swim Pool Water Treatment
- Calgon for Corrosion Control

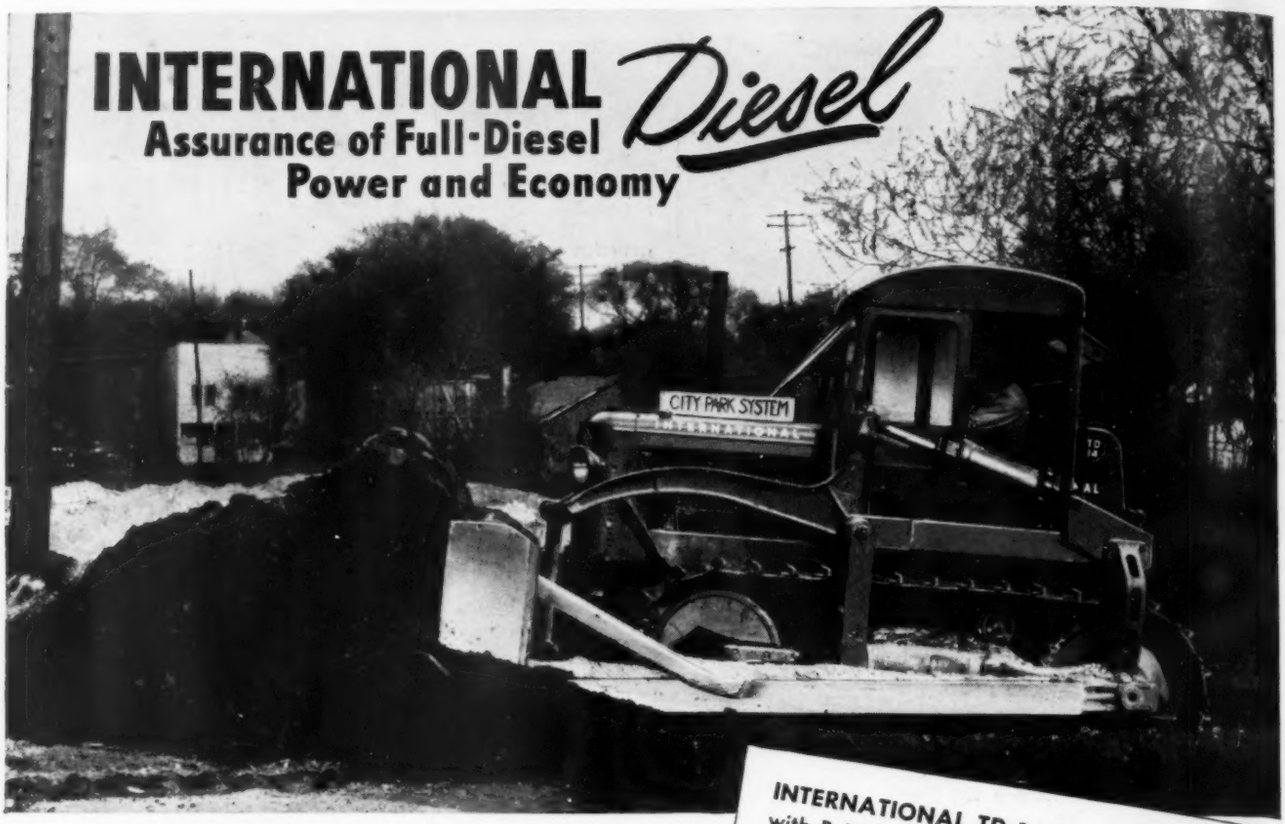
CHLORINE DIOXIDE PROCESS FOR TASTE AND ODOR CONTROL
Sterilization with HTH, Perchloron, Pittchlor or Bleach

CHEMICAL FEEDERS DIVISION
MORSE BOULGER DESTRUCTOR COMPANY

Room 1700F—205 E. 42nd Street
NEW YORK 17, N. Y.

INTERNATIONAL *Diesel*

Assurance of Full-Diesel Power and Economy



INTERNATIONAL TD-14 Diesel TracTracTor with Bulldozer moves 300,000 yards of sand and gravel to level and reclaim land for a City Park along a river. Material moved was dredged from the river. Cost for fuel averaged 1/10 of a cent per yard!

Municipalities and counties using International Diesel Crawlers and Wheel Tractors experience great satisfaction in their working horsepower and in the low operating costs that result.

High conversion of engine horsepower into push or pull is an international Diesel accomplishment that gets work done easily, inexpensively. International horsepower is *working horsepower*, not simply a laboratory rating!

The instant starting system, built right into International Diesel Engines, is an exclusive feature that saves time in getting tractors working.

Other advantages, such as correct weight distribution, excellent balance, matchless service accessibility of all parts, and sturdy, shock-absorbing construction, make International Diesel Crawlers your best choice for heavy work.

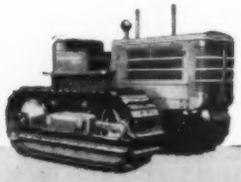
Equipment built to use with International Tractors is unexcelled—perfectly matched to their power and weight. That means all-around efficiency that results in more work per dollar of expenditure and long working life for both tractor and equipment.

See the International Industrial Power Distributor near you for all the facts about available TracTracTors, Wheel Tractors, Power Units and matched equipment.

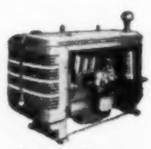
Industrial Power Division

INTERNATIONAL HARVESTER COMPANY

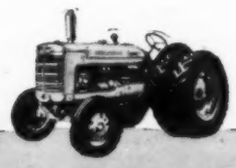
180 North Michigan Avenue **Chicago 1, Illinois**



TRACTRACTORS



POWER UNITS



WHEEL TRACTORS

INTERNATIONAL INTERNATIONAL HARVESTER **Industrial Power**

Builders-Providence Honors Employees for Second Time

Henry S. Chafee, president of Builders-Iron Foundry, presents Builders' Forty Years' Service Award to Antonio Rossi, a molder, at the recent annual banquet.

Builders Iron Foundry (Builders-Providence, Inc.) of Providence, R. I., pays tribute to the company's employees for length of service through its Service Award Plan whereby service pins are awarded to all employees who have completed five, ten, or twenty-five years of service. A special award is made to those who have completed forty years of service with the company during the previous year.

The second service award dinner was held recently in the ballroom of the Crown Hotel, Providence, R. I., and the fifty-four employees who have completed more than 25 years of service welcomed the recipients of new awards. Two new awards were made for over forty years' service, five for over twenty-five years', twenty for over ten years', and fifty-seven for over five years' service.

H. O. R. Company In New Location

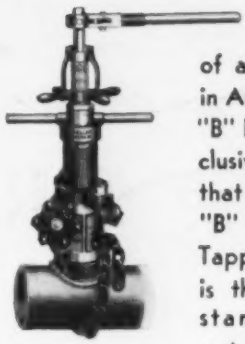
H. O. R. Company, Inc., manufacturers of mechanical and electrical sirens and vehicle lights for municipal use, recently moved into a modern factory at 40 Broadway, West Newbrighton, Staten Island 10, N. Y. The company also announces a new product for fire apparatus and emergency vehicles—a revolving red light which is always pointed forward toward the oncoming traffic and does not swing away from it when in motion.

Engineer Veterans Rejoin Bailey Meter

Eight engineers who have recently been released from military service have rejoined the Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland, Ohio, and resumed their activities in instrumentation, combustion, and automatic control engineering. After having completed a refresher course at the factory in Cleveland, most of these engineers are now located in the company's branch offices where they will assist power and process engineers in the suitable application of meters and controls. They have been assigned as follows: J. A. Lucas to his former position in the Cincinnati office, J. W. Herrington to his former position in the Atlanta office, J. E. Zimmerman to the Detroit office, A. L. Danielsen to the Denver district, S. T. Novak to the position of quality engineer at the Cleveland factory, H. R. Jamieson to the Proposition Department in Cleveland, H. C. Schink to the Boston office, Vincent Beno to development work in the company's research department.

Two engineers from the Canadian army have recently returned to the company's Canadian subsidiary. They are: W. L. Thompson, manager of the Toronto office, and W. A. Nelson of the Canadian head office at Montreal.

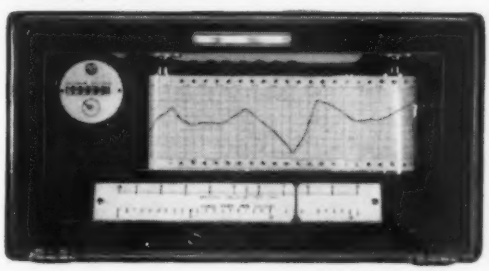
95%



of all water works in America use this "B" Machine. Conclusive evidence that the MUELLER "B" Drilling and Tapping Machine is the accepted standard in the water works industry for drilling and tapping holes in pipe, and for inserting or removing corporation stops of equal or larger size—all under pressure. Order your MUELLER Machine today.

MUELLER CO. FOUNDED 1857
DECATUR 70, ILL. LOS ANGELES 23, CALIF.

SPARLING MAIN-LINE METERS



TOTALIZING METERS • CONTROLS INDICATORS • RECORDERS

IN YOUR plans to meet the housing situation, efficient water works operation will play a big part. Sparling water measuring equipment gives accurate information needed for economical operation—from the day's distribution on a 2-inch line to a complete flow chart on a major intake. As an example of cost, a complete Totalizing unit, in tube, for a 6-inch line is $300.

Bulletin 308 comes upon request

R. W. SPARLING — *Manufacturer of Water Measuring Equipment*

LOS ANGELES 54 ... Box 3277 Terminal Annex — 6822 Broadway ... CINCINNATI 2
CHICAGO 16 ... 3104 South Michigan Ave. — 101 Park Avenue ... NEW YORK 17
BOSTON 8 ... 6 Beacon Street

TRADE MARK
GAMEWELL
REG. U.S. PAT. OFF.

The FIRE ALARM FACTOR

FIRE ALARM in most cities is seriously deficient . . . yet, until the alarm is given the extinguishing agencies are helpless and fire losses continue to increase.

THE FACTORS . . . *Water Supply* and *Fire Department* . . . are indispensable elements of the municipal fire defenses but so much importance has been attached to them that the relative values of other fire defenses . . . especially *Fire Alarm* . . . have been largely obscured.

CITY OFFICIALS and others desirous of improving the fire defenses of their communities are invited to write us for information relative to the FIRE ALARM FACTOR. Our new booklet contains some interesting data on this subject and will be supplied on request.

Ask for booklet, "IT CAN HAPPEN HERE"

THE GAMEWELL COMPANY
NEWTON UPPER FALLS 64, MASSACHUSETTS
IN CANADA: NORTHERN ELECTRIC COMPANY, LTD., MONTREAL

Several Changes at Caterpillar Tractor

Cornell E. Jones has been named sales development manager of the Caterpillar Tractor Co., Peoria, Ill., according to an announcement by H. H. Howard, general sales manager.

Cornell E. Jones

Mr. Jones, formerly a major in the Army Corps of Engineers, has served with county and state highway departments, the J. A. Adams Co., and International Harvester Co., both in domestic and foreign operations. During the war, he was assigned to the Peoria, Ill., area charged with procuring "Caterpillar' products for the Corps of Engineers.

Mr. Jones takes over the duties of Kenneth F. Park, recently named to the newly created post of engineering consultant on all matters pertaining to the earth moving field.

Caterpillar also announced the retirement of Carl O. Wold, a vice-president, after forty years of service with the Russell Grader Manufacturing Co., and the Caterpillar organization. He was executive head of the Russell organization until it was acquired by Caterpillar in 1928.

The Russell Company, under Mr. Wold's guidance was first to use a separate power unit on elevating graders and was a pioneer in the road grader field.

Water and Sewage Plant Corrosion Control

New and improved formulas for No-Ox-Id rust preventives and specially designed equipment for application, manufactured by the Dearborn Chemical Co., 310 S. Michigan Ave., Chicago, Ill., have now been made available to the water and sewage treatment fields.

The efficiency of the various No-Ox-Id products is based on the exclusion of moisture and oxygen from exposed steel surfaces by the use of non-drying films which permit rust inhibitors to function. The permeability of most films to moisture and gases, together with their tendency to dry and become brittle, has indicated the value of a non-drying coating containing a rust inhibitor.

The Dearborn Chemical Company has developed a grade of No-Ox-Id to meet practically every water and sewage treatment need. Of interest also is the protection that can be supplied to the inside of water lines through an application made with special light, easily handled equipment. Bulletin 3007 describes these products in detail and tells where to use them.

Penn Salt Officials Visit European Chemical Companies

Leonard T. Beale, president of the Pennsylvania Salt Manufacturing Co., Philadelphia, Pa., and Richard L. Davies, assistant to the president, sailed recently for a month's visit in Europe where they will discuss the resumption of business relations with chemical companies in England, France, and Denmark.

Mr. Beale said the main object of the trip was to renew the long friendship with the cryolite company in Copenhagen from which Penn Salt had been buying cryolite ore since 1865. Another object of the trip, he added, was to establish close relationships between certain friendly English and French chemical companies which might "result in our securing information that will enable Penn Salt to produce certain important chemicals in exchange for which similar data will be given the foreign companies on processes Penn Salt has developed."

Mr. Beale pointed out that the talks would also concern expansion of foreign manufacture of products developed by Penn Salt chemists and engineers.

H&B Moto-Paver

THE COMPLETE TRAVELING MIXER AND PAVER

Does the Complete Mixing and Paving Job

● The Moto-Paver mixes, spreads and lays any type of mixed-in-place bituminous material to any road width, thickness and crown condition. No separate loader, spreader or other paving equipment is required—no trailer to haul the machine from one job to another.

Resurfacing Michigan Road with the Moto-Paver

The Moto-Paver does *the complete mixing and paving job,* and travels from one job to another under its own power. Paving speed is from 4 to 50 feet per minute, road speed up to 18 miles per hour. Mixing capacity 100 to 120 tons per hour. Bulletin MP-46, giving complete information and specifications, will be sent on request.

HETHERINGTON & BERNER INC.
719 KENTUCKY AVE. • INDIANAPOLIS 7, IND.

Also Builders of Portable and Stationary Batch Mix Plants of All Types and Capacities

H&B Hetherington & Berner

HARLEY-DAVIDSONS Exceptionally Valuable IN ACCIDENT PREVENTION

The East Chicago, Indiana, police department uses Harley-Davidsons exclusively, eight of which are shown here. From left to right, the men are — Walter D. Conroy, Chief of Police; J. Steiner, City Engineer; B. Bochnowski, City Comptroller; Lt. Otto H. Stumpf, Traffic Supervisor; Sgt. Michael Vinovich and Officers Joseph Algozine, Howard Manaugh, Bernard Justine and Fred Pera.

AS in many American cities, the police of East Chicago, Indiana, know from experience that no other method can match motorcycles in handling so many phases of traffic control. This is especially true during concerted drives to *prevent accidents before they occur* — such as the Brake Check and Police Traffic Safety Check Programs sponsored by the International Association of Chiefs of Police. We say — "More power to accident prevention programs of this kind" — and urge all police departments to cooperate in every way in reducing the terrific toll of deaths and injuries that stem from the present alarming increase in traffic accidents! Call in your Harley-Davidson dealer today — get complete information on the many advantages of equipping your department with an adequate number of dependable, efficient Harley-Davidson Police Motorcycles.

HARLEY-DAVIDSON MOTOR CO., Milwaukee 1, Wisconsin

New Company Formed in Water Conditioning Field

A new company has been formed in the field of water conditioning for industrial, municipal, railroad, and household use, to be known as the Liquid Conditioning Corp. It will also provide equipment and materials for conditioning other liquids, including chemical liquids.

S. B. Applebaum

The company was formed by three former executives of The Permutit Co.; S. B. Applebaum, vice-president and director, who had been in charge of technical policy, contract and guarantee approval, mechanical design and developments; H. L. Tiger, vice-president and director, who has been in charge of research and development and patents; and Norman E. Brice, mechanical engineer in charge of engineering layout and design and factory construction and maintenance.

The company is at present located at 423 West 126th St., New York City, and arrangements are being made for the construction of a plant at Linden, N. J.

Eastern Field Manager for Chicago Pump Co.

Frank C. Roe has been appointed eastern field manager of the Sewage Equipment Division of the Chicago Pump Co., 2300 Wolfram St., Chicago 18, Ill., and has headquarters at the New York branch office, 79 Madison Ave. Stanley E. Kappe, formerly eastern field manager, has been appointed sales representative of the Sewage Equipment Division, with headquarters at 1420 New York Ave., NW, Washington, D. C.

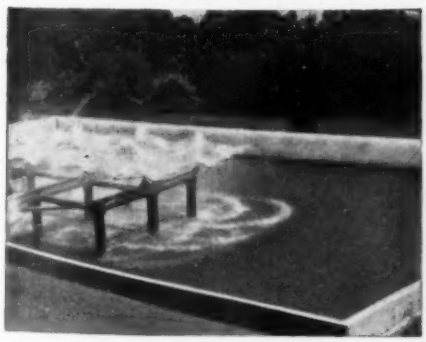
Mr. Roe was graduated in sanitary engineering at the University of Illinois in 1925. For the next two years he was with the Sanitary District of Chicago, after which he was for five years a partner of Shields, Jordan and Roe, Engineers.

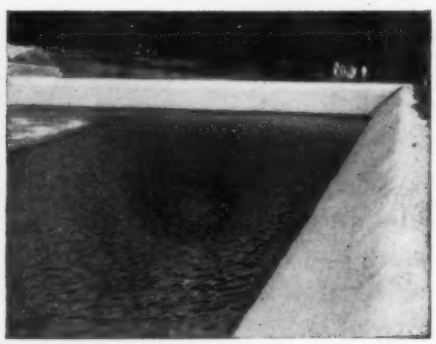
During the last fourteen years he was with the Carborundum Company of Niagara Falls, N. Y., and Perth Amboy, N. J., as development engineer and manager of porous products sales. He was responsible for the development of the company's porous diffusers for sewage and water aeration, porous underground plates for water filters, and numerous other products and applications.

CEMENT GUN COMPANY

"GUNITE" CONTRACTORS

GENERAL OFFICES—ALLENTOWN, PENNA., U.S.A.





RESERVOIR RE-LINED WITH "GUNITE"

The photos above show the completed "GUNITE" lining of a filtered water reservoir at Charlottesville, Virginia.

In 1937 when we were called in to line this reservoir with "GUNITE" the original concrete lining was badly cracked with resultant very heavy leakage.

After chipping away the loose and disintegrated concrete and placing a layer of heavy reinforcing mesh, a two-inch "GUNITE" lining was applied.

This new lining eliminated leakage entirely, and a recent inspection of the work indicates that it is in first-class condition and that the reservoir is as good as new.

Our 72-page general bulletin D2300 describes this and scores of other "GUNITE" jobs of all types.

Write today for your free copy of bulletin D2300.

MANUFACTURERS OF THE "CEMENT GUN"

L&S

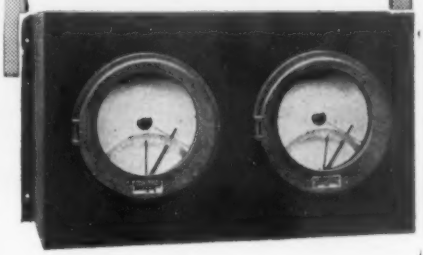
STEVENS

Type B

RECORDER

... does 3 jobs well

- *Records and indicates head or flow.*
- *Totalizes flow.*



The user list of Stevens *Type B* Recorder reads like a Blue Book. Reason—the instrument is particularly adapted to waterworks, sewerage and industrial applications—and is equally suitable to any class of recorder service.

Type B is really *triplets*. It records and indicates either head or rate of flow and registers total volume passed in any elapsed time.

Circular charts are used and may be had for daily or weekly operation.

The *Type B* is direct float operated or remotely controlled. Quality 8-day or electric clock is standard equipment. The recorder can be mounted on wall, pedestal, panel, or in sewer manhole. It can be hermetically sealed against corrosive fumes.

Want more information about this 3-way wonder? Write for Bulletin 25.

LEUPOLD & STEVENS INSTRUMENTS

Manufacturers since 1907

PORTLAND 13, OREGON

Hydrographic • Surveying • Navigation Automatic Controls

Leupold & Stevens Instruments
4445 N. E. Glisan St., Portland 13, Oregon

Please send Bulletin No. 25 on the Stevens *Type* B Recorder.

Name _____

Organization _____

Title _____

Street _____

City _____ *Zone* _____ *State* _____

This concrete arterial street in Grand Island, Neb. enhances property values because of its impressive neatness. Its light color simplifies night illumination—makes driving safer.

Clean, attractive concrete streets enhance a city's pride in its downtown business section. This concrete pavement in Wichita Falls, Texas, has carried traffic more than 25 years.

CONCRETE

long-lasting low-annual-cost street pavement

Whether for urban expressways, business thoroughfares or residential streets, portland cement concrete pavement can be economically designed for any conditions of load and service.

Concrete pavement correctly designed, usually costs less than any other pavement of equal load-carrying capacity.

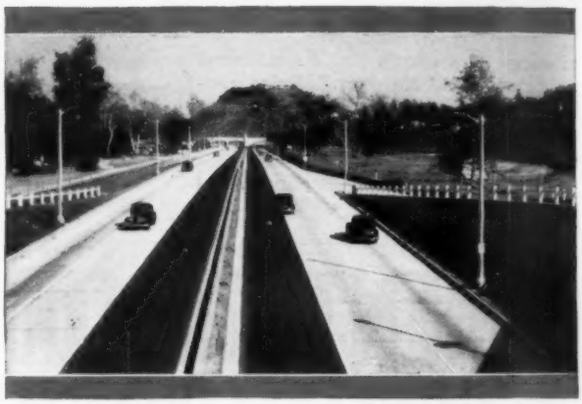
Concrete will carry traffic safely for many years with minimum expense for maintenance; render uninterrupted all-weather service at *low annual cost*—the true measure of pavement economy.

Write for latest design information on concrete pavements for roads, streets or airports. Free in United States and Canada.

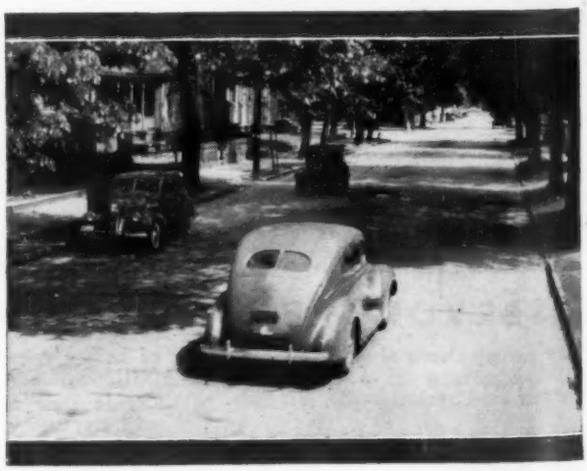
PORTLAND CEMENT ASSOCIATION

Dept. 6-4, 33 W. Grand Ave., Chicago 10, Ill.

A national organization to improve and extend the uses of concrete . . . through scientific research and engineering field work



The concrete pavement on Arroyo Seco Parkway carries, without congestion, heavy traffic between the downtown sections of Los Angeles and Pasadena.



This concrete paved residential street in Augusta, Ga., has given more than 25 years of service. It is still in excellent condition as shown by recent picture.

Thwaits Appointed Preload Consulting Engineer

E. H. Thwaits has been appointed by the Preload Corp., 420 Lexington Ave., New York, as consulting engineer to direct its prestressed concrete pipe and pipe lining department.

Ed H. Thwaits

Mr. Thwaits, well known water works and sanitary engineer, practiced hydraulic and sanitary engineering in Denver, Colo., under the firm name of Douglass and Thwaits, Inc. and later under the name E. Harrison Thwaits, Inc., Consulting Engineer.

In 1936 Mr. Thwaits established a water works division for The Youngstown Sheet and Tube Co., Youngstown, Ohio, for the development and distribution, on a national scale, of coated and lined steel pipe for water mains.

In 1941 he was chosen by the steel industry to establish a steel pipe research department, and became research engineer in charge of pipe for the Committee on Steel Pipe Research of the American Iron and Steel Institute. He resigned to join the Preload Corporation on January 1, 1946.

The Preload Corporation is a pioneer in the design and construction of prestressed concrete structures, specializing in prestressed concrete storage tanks, sludge digestion tanks, and prestressed concrete pressure pipe, penstocks, pressure vessels, dome roofs, circular aircraft hangars, circular buildings, and cement lining of pipe lines.

Abrams Instrument Corp. Participates in Inter-Training Program

The Abrams Instrument Corp., 600 E. Shiawassee St., Lansing, Mich., through the actvity of its president, Talbert Abrams, and its sales representative, J. E. Meyer, recently took part in a lecture course prepared for a large group of Latin American highway engineers. The course, held at the National Academy of Science Bldg., Washington, D. C., was sponsored by the American Road Builders Association in cooperation with the Pan-Amercan Highway Conference, U. S. Department of State, and the Public Roads Administration.

A discussion on the subject "Application of Aerial Surveying to Highway Reconnaissance and Location" explained the stereoscopic theory and its uses in photograph interpretation for highway construction materials, grade studies, and general planimetric detail.

PLAN on good fencing right from the start, and you assure adequate protection, simpler installation, and harmony with your landscaping. It becomes an integral part of your project design.

You'll find Cyclone Chain Link Fence is "Tops in Protection" for every type of job. It's built to stand up under difficult conditions of terrain and weather. Rails won't buckle. Gates won't drag. Posts stay in alignment. And there are types to fit all your varied requirements for public utilities, parks, playgrounds, pools, stadia and other projects.

Let our trained engineers furnish estimates and assist you with your planning—no obligation, of course. And send the coupon for your free copy of our fact book, "Your Fence". It will help you see for yourself why U·S·S Cyclone has become the most widely used property protection fence in the world.

Send for FREE 32-page Book. Profusely illustrated. A reference manual full of facts and specifications. Complete information on different types of fence, gates, athletic field equipment, and other property safeguards.

U·S·S CYCLONE FENCE DIVISION

(AMERICAN STEEL & WIRE COMPANY)
Waukegan, Ill. · *Branches in Principal Cities*
United States Steel Export Company, New York

CYCLONE FENCE DIVISION · American Steel & Wire Co. · USS CYCLONE FENCE · UNITED STATES STEEL

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Please send me, free of charge, your 32-page book on Fence.

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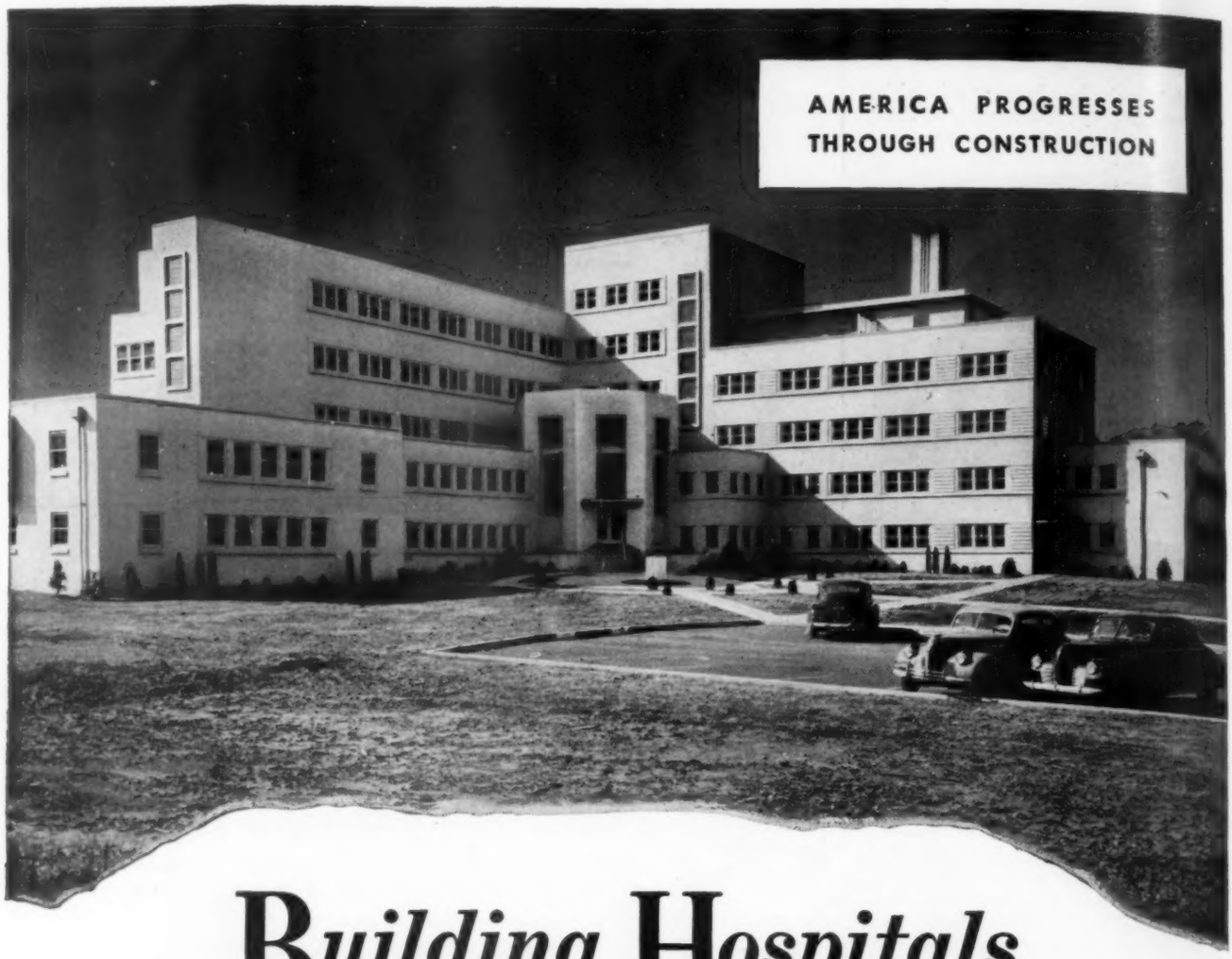
UNITED STATES STEEL



Building Hospitals

BUILDS WEALTH THROUGH HEALTH

THIS country needs from 1500 to 2000 new civilian hospitals and 2700 health centers, the U. S. Public Health Service reports. This need is emphasized because approximately 1200 counties, with a population of about 15,000,000 have no hospitals within their boundaries. The cost of supplying these National health needs would amount to more than $2,000,000,000

In addition, the Veterans' Administration program calls for the construction of 77 new hospitals. The cost of these hospitals, together with additions and improvements to the 106 existing veterans' institutions, will be $448,000,000.

These civilian and veteran hospital facilities deserve the best in planning and execution. A. G. C. contractors have the skill, integrity and responsibility to construct these health projects of highest quality with maximum efficiency and economy. They are pledged to sound business principles exemplified by the A.G.C. emblem.

THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA · A G C · SKILL INTEGRITY RESPONSIBILITY · REG. U.S. PAT. OFF.

This advertisement is No. 6 of this series

THE ASSOCIATED GENERAL CONTRACTORS of AMERICA, INC.

More Than Ninety Branches and Chapters Throughout America

National Headquarters — Munsey Building, Washington 4, D. C.

SKILL, INTEGRITY AND RESPONSIBILITY IN CONSTRUCTION OF BUILDINGS, HIGHWAYS, RAILROADS, AIRPORTS AND PUBLIC WORKS

Southwest District Manager for Clayton Valve

Russel N. Oliver has been promoted to the position of District Manager of the Clayton Valve Manufacturing Co., Alhambra, Calif., in the southwest area, according to a recent announcement. With headquarters in Dallas, Texas, he will represent Clayton in Texas, Oklahoma, Arkansas, Western Tennessee, and Northern Louisiana.

Merlman Photo

Russel N. Oliver

Mr. Oliver has had fourteen years' experience in the valve industry and served as heating and plumbing consultant engineer to the U. S. Army at Port Hueneme, Calif., during World War II.

Kalbfleish Joins DuBois-Webb Co.

Howard Kalbfleish has joined the staff of the DuBois-Webb Co., Detroit, Mich., distributors for the products of the Simplex Valve & Meter Co., 6783 Upland St., Philadelphia 42, Pa., in the Michigan area, as sales engineer.

Mr. Kalbfleish, recently discharged from the navy as a lieutenant commander in the ordnance section, is a graduate of Michigan State College and is well known in the industrial instrument field.

Clay Pipe Manufacturers Settle Strike

Production of clay sewer pipe started again April 22 in thirteen companies, members of the Clay Sewer Pipe Association, according to a statement issued by Thomas Rockwell, chairman of the joint industry-labor meetings at which the agreement was negotiated. These companies had had a strike for 73 days which shut down 19 plants and tied up about 50% of the total U. S. clay pipe production.

The wage agreement gave the striking workers an 18½ cent hourly raise, plus a 22% hourly increase for incentive workers. Coupled with this was an OPA announcement of a 15% price increase to the manufacturers. The union had asked for a 30-cent hourly raise.

Company officials state that shipments of clay pipe and kindred products will be resumed as soon as possible. They point out that clay pipe shipments exceeded total production for many months prior to the strike and that yard stocks are lower than they have ever been.

The companies which resumed production are: American Vitrified Products Co., of Cleveland, Ohio; The Clay City Pipe Co., of Uhrichsville, Ohio; Dennison Sewer Pipe Corporation of Cleveland; The Evans Pipe Co., of Uhrichsville; The Robinson Clay Product Co., of Akron, Ohio; Robinson & Sons Sewer Pipe Co., of Uhrichsville; Ross Clay Products Co., of Uhrichsville; Universal Sewer Pipe Corporation of Cleveland; Patton Clay Manufacturing Co., of Patton, Pa.; Brockway Clay Manufacturing Co., of Brockway, Pa. and the Peerless Clay Manufacturing Co. of Toronto, Ohio.

Public Relations Representative for American Locomotive

Edward J. Dudley has been appointed public relations representative, with headquarters at Schenectady, of the American Locomotive Co., 30 Church St., New York 8, N. Y., according to Lynn Mahan, assistant to the president and director of public relations.

Mr. Dudley was recently placed on inactive duty after army service as a major with the War Department Bureau of Public Relations.

Prior to entering the Army in 1941, he was a reporter for the Rochester, N. Y., *Democrat and Chronicle* and on the staff of the Rochester *Journal*.

25,000 Miles of CALCIUM CONSOLIDATED ROADS show the way

Hundreds of communities have found the way to get more miles of better roads for less money with calcium chloride for surface consolidation.

Such roads are built of local materials, by local labor, under local supervision and, when consolidated with a moisture bond provided by calcium chloride, are real, scenic highways—smooth and dust-free.

The road shown has been in service for eight years as a secondary state route. Its cost was low, its maintenance cost very low. Its surface is firmly bound and long-wearing.

This high type of low-cost improvement is excellent for new subdivisions and for city streets which do not justify costly paving.

Ask for our booklet, "Surface Consolidation and Maintenance with Calcium Chloride."

CALCIUM CHLORIDE ASSOCIATION 4145 Penobscot Bldg., Detroit 26, Mich.

More Miles of Better Roads—

CALCIUM CHLORIDE

Consolidation

TRINIDAD NATIVE LAKE ASPHALT

BARBER ASPHALT CORPORATION,
BARBER, NEW JERSEY

ETNYRE
Street Flushers
"THE MACHINE OF A DOZEN USES"

ARE YOUR STREETS "HEALTHY"?

With an Etnyre Sanitary Street Flusher your streets too can be clean, cool and healthful even during the heat of mid-summer. Three knife-edged, high pressure streams of water clean streets up to 42 feet wide in *one trip*, even under parked cars... reducing bacterial count and disease hazard, laying dust, cooling pavements. Get full information from your Etnyre dealer or write us today!

E. D. ETNYRE & CO., Oregon, Illinois

DAVEY AUTO-AIR GETS MOBILITY, ARMY STYLE— INTO COMPRESSED-AIR JOBS

This war has taught America mobility . . . the value of self-contained units that can get to the job, do it, then get quickly on to another.

On short compressed-air jobs, where maximum mobility means greatest efficiency, the Davey truck-mounted AUTO-AIR has no competition. Powered by the truck engine through the Davey Heavy-Duty Truck Power Take-Off and mounted behind the cab, using less than one-third of the truck space, the Davey Auto-Air leaves plenty of room for men, tools, and materials.

MOBILITY — ECONOMY — VERSATILITY

A choice of three units—compressor, compressor-welder, or compressor-welder-lighting generator—offers ability to do almost any job. Compressors available in 60, 105, 160, 210 and 315 cu. ft. capacities . . . welding and lighting generators to suit your requirements.

For full information on the complete Davey Line of Compressors, Truck Power Take-Offs, Pneumatic Saws and additional pneumatic engineering data, write today for free catalog E-172.

DAVEY *Compressor Co.*
KENT • OHIO

DEALERS IN PRINCIPAL CITIES

Meeker Elected President of J. D. Adams Mfg. Co.

H. R. Meeker, new president of J. D. Adams, and R. E. Adams, chairman of the board.

Howard R. Meeker has been elected president of the J. D. Adams Mfg. Co., Indianapolis, Ind., at the company's annual stockholders' meeting. He has served as executive vice-president since 1939, during which period Roy E. Adams served both as chairman of the board and president. Mr. Adams retains the office of chairman of the board.

Mr. Meeker entered the Adams organization in 1913 as a member of the engineering department following his graduation from Purdue University. He has served successfully as factory manager, division sales manager, general sales manager, and executive vice-president.

New Cleveland Operations Announced by LeRoi Co.

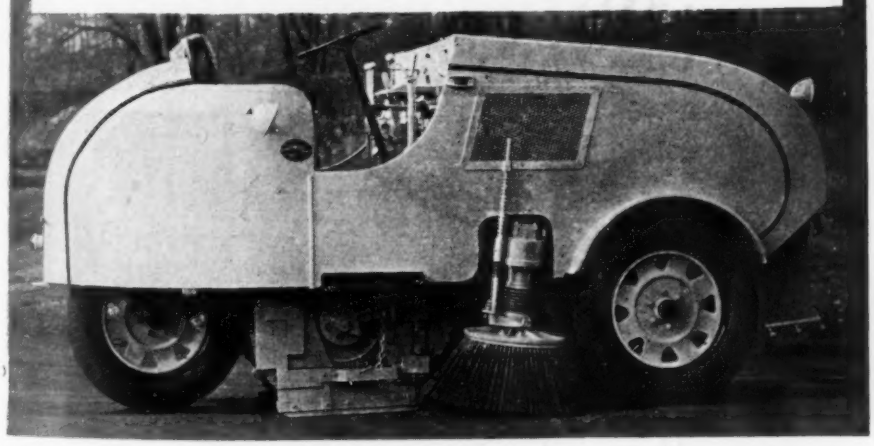
LeRoi Co., Milwaukee, Wis., has announced the formation of new manufacturing operations division to be known as "The Cleveland Division," according to C. W. Pendock, president. This division will produce a complete line of rock drills and related pneumatic equipment to complement the company's line of portable compressors. Production is scheduled to begin immediately.

A modern plant equipped with the latest types of tools and metallurgical, heat treating, and testing facilities will be located in Cleveland. Russell R. Morgan, a former officer of The Cleveland Rock Drill Company, heads this division.

Distribution of The Cleveland Division products will be integrated with the overall sales program of the company involving a world-wide distributor-service organization. District offices will be utilized in effecting coverage of the United States and export sales will be handled by the company's foreign sales department and through distributors located all over the world.

South Bend GUTTER-SNIPE

Pick-up Street Sweeper



MUNICIPAL SUPPLY COMPANY

Manufacturers

Street Sweepers
Street Flushers
Bituminous Distributors

SOUTH BEND 23, INDIANA

EXPORT DEPARTMENT, 44 Whitehall Street, NEW YORK 4, N. Y., U. S. A.

BEST *for* 90 YEARS

...the "Diamond" Line

For almost a century—since 1856—the McDonald Diamond Line has furnished the trade with the best in quality water works goods. And during that time, the "Diamond" has come to be the symbol for service, craftsmanship, and dependability. One of the many items in this well-known line is illustrated above—Plate E-3061, McDonald Diamond Patent Cap Inverted Key Curb Stop and Stop and Drain, round way, malleable galvanized tee handle, iron pipe. Sizes ½, ⅝, ¾, 1, 1¼, 1½ and 2 inches. Write for prices and availabilities.

EST. 1856 McDonald

A. Y. McDONALD MFG. CO.
DUBUQUE, IOWA
BRASS GOODS • PUMPS • OIL EQUIPMENT

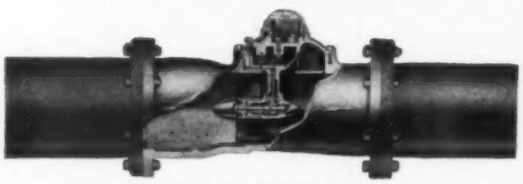
TRACKS DOWN WATER WASTE FOR NATIONALLY KNOWN MANUFACTURER

A large manufacturing plant never knew how much water it wasted until a Builders Propeloflo Meter was recently installed. The 8" line, previously unmetered, supplied water at 70 lbs. per sq. in. for continuous blowdown, cooling heat exchangers, washing down the boilers, cooling the bearings of coal feeders, etc. When this Propeloflo Meter showed that an excessive amount of water was being used . . . between 7 and 8 million lbs. of water per 24 hrs. . . . a new boiler room routine was adopted which effected large savings.

The Propeloflo Meter tracks down waste and is successfully used for metering lines carrying hot or cold water . . . as well as other free-flowing liquids such as clear effluent from sewage and trade waste treatment plants. Its streamline Venturi design creates uniform velocity distribution and gives exceptional accuracy through a wide range of flow with low loss of head. The Propeloflo is complete in itself and easily installed in any pipe. For Bulletin 350A, address Builders-Providence, Inc., (Division of Builders Iron Foundry), 18 Codding Street, Providence 1, R. I.

AUXILIARY EQUIPMENT AND SECONDARY INSTRUMENTS
CABLE-OPERATED TOTALIZER, INDICATOR, RECORDER
CABLE-OPERATED TOTALIZER
ELECTRICALLY-OPERATED TOTALIZER, INDICATOR, RECORDER
ELECTRICAL CONTACT FOR BATCH CONTROL
TREET-O-CONTROL FOR CHEMICAL PROPORTIONING

SOLID EXTENSION FOR COUNTER WHERE METER MUST BE LOCATED BELOW FLOOR OR GROUND LEVEL.



BUILDERS PRODUCTS

Venturi, Propeloflo and Orifice Meters • Type M and Flo-Watch Instruments • Filter Controllers and Gauges • Master Controllers • Kennison Nozzles • Chronoflo Telemeters • Conveyor Scales

BEFORE YOU BUY *ANY* FLOW METER, CHECK WITH BUILDERS

BUILDERS—PROVIDENCE

BUILDERS

LOCATE UNDERGROUND LEAKS

without any digging . . .

WITH A *GEOPHONE*

The original leak locator of the Geophone type

Placed in contact with the earth, the GEOPHONE accurately detects, by sound, the position of leaks in underground water or steam pipes.

Leaks are too costly to be ignored. A pin-point size leak wastes 65,000 gallons of water annually!

A GEOPHONE saves the cost of locating leaks — saves the costs of surveys, excavating, replacing. A big paying investment for water, sewerage and Public Works Departments; for any plant with underground water or steam pipes.

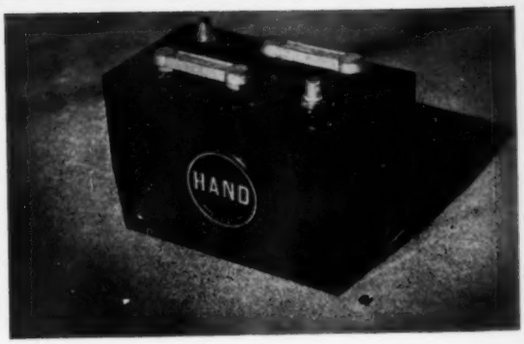
Outfit complete with two GEOPHONES, connecting tubes, earphones, in heavy leather carrying case with shoulder straps. ..$75

Write at once to

Globe Phone Mfg. Co., Dept. H Reading, Mass.

Manufacturers of the Geophone since 1918

HAND STORAGE BATTERIES FOR MUNICIPALITIES



HAND storage batteries are heavy-duty batteries provided with heavy, hand-pasted, tank-formed plates, heavy glass mats, acid and heat resisting micro-porous rubber separators, splash decks and genuine hard rubber containers. Built for use in Police Radio cars, Sanitation trucks, snow plows, sweepers, emergency trucks, ambulances, and fire apparatus.

The Hand Laboratory, Nyack, N. Y.

Perelle Named President of Gar Wood Industries

Charles W. Perelle, formerly vice-president in charge of manufacturing of Consolidated-Vultee Aircraft Corp., has been elected president of Gar Wood Industries, Inc., Detroit, Mich., according to an announcement by John J. Bergen, chairman of the board. He succeeds Glen A. Bassett, retired.

Charles W. Perelle

Mr. Perelle, who rose in seven years from a $175-a-month tool designer to be a $75,000-a-year vice-president of Hughes Tool Co., was responsible at Convair for the production of more than 30,000 military aircraft, including the four-motored B-24 Liberator bomber and was in charge of more than 100,000 employees in the company's eleven plants. He installed the first mechanized assembly line in the aircraft industry at Vultee and final-assembly time of its trainers was reduced more than 75% within four months of its installation.

Mr. Perelle started in the aviation industry in 1930 as a painter's helper at Boeing at 40 cents an hour. He worked as a riveter's helper at 35 cents an hour, later became a tool designer and designed the tools for the Flying Fortress, Pan-American Clipper, and Boeing Stratoliner. In 1937 he was sent to Canada to set up, equip, and supervise Boeing's Vancouver plant. He returned to Boeing's main plant in Seattle, Wash., in 1939 as production manager.

He joined Vultee in August 1940 as general superintendent, was made general manager of the Vultee Field Division five months later, and less than a year after this was elected vice-president in charge of production of the merged Consolidated-Vultee company, and then became vice-president in charge of manufacturing.

As general manager of the Hughes Aircraft Corp., he was in charge of construction of Howard Hughes' giant 750-passenger flying boat which is expected to be flown soon.

Also announced is the appointment of Ross Miller as manager of the Pacific coast factory of Gar Wood Industries, Inc., in San Francisco.

Mr. Miller joined the organization as a mechanic in 1920, later became a foreman, and was named manager of the company's Baltimore branch in 1932. He subsequently served as a salesman in the New York branch, was Middlewest district manager, worked as an expediter for the company, and was named national service manager in 1943. Mr. Miller has just completed a special assignment as manager of Gar Wood's Philadelphia branch (hoist and body division).

Lieut.-Commdr. Spann Returns to Gardner-Denver

B. P. Spann, advertising manager of the Gardner-Denver Co., Quincy, Ill., has returned to the company after more than thirty-eight months of service in the navy.

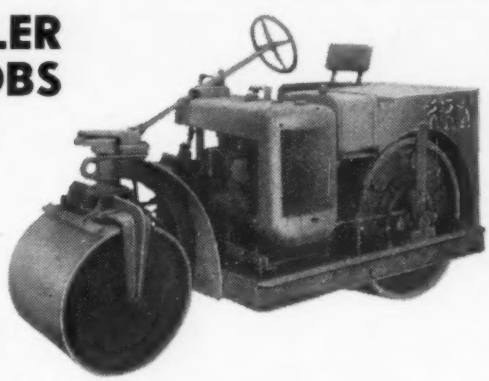
B. P. Spann

On a leave of absence since November 1942, he was stationed at the aviation supply office in Philadelphia as officer in charge of maintenance and overhauling of spare parts for all navy transport aircraft. He was discharged with the rank of lieutenant-commander, having risen from the rank of lieutenant (j.g.).

A TOUGH ROLLER FOR TOUGH JOBS

Pierce-Bear 3½-5 Tons, Variable Weights

Engineered for economical operation where the going is tough. Compact, easy to operate. Rear roller gives heavy duty compression. Built-in water tanks for wet rolling. Powered with Allis-Chalmers Industrial Heavy Duty Model "B" gasoline engine. Write for details.



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LEWIS MANUFACTURING COMPANY

415-431 Hoefgen Ave. SAN ANTONIO 6, TEXAS Phone Garfield 6137 or 8931

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AUTOMATIC POWER OR TANK PRIMERS

AIR RELEASE VALVES

FOR FILTER PIPE LINES DISTRIBUTION LINES AND OTHER USES 17 TYPES

VALVE AND PRIMER CORPORATION

Room 366—111 W. Washington St. CHICAGO, ILL.

for MAXIMUM **FROST PROTECTION**

Ford Double-lid Meter Box Covers have a dead-air space in the neck and a sloping skirt which cut down heat loss to the minimum. They are recommended for water meter settings where climate and soil conditions demand maximum protection against freezing.

Information on request.

FORD Meter Box Co.

WABASH, INDIANA

Easy to LAY

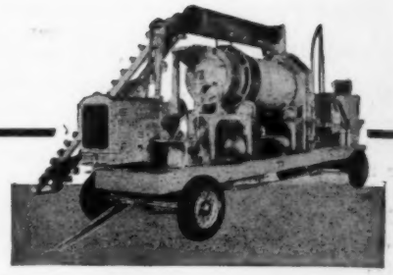
"Just socket the spigot and calk"

It's a cinch to lay permanent 2" mains with McWane PRECALKED pipe.

All he uses is a calking tool and a hammer . . . for all he does is socket the spigot and calk. No lead to melt and pour. No expensive equipment. No skilled labor. And how that cuts installation time and costs!

McWane Cast Iron Pipe Co., Birmingham 2, Ala.

McWane PRECALKED Pipe



PORTABLE ASPHALT PLANTS

Write for Catalog

Elkhart **White Mfg. Co.** Indiana

GUNITE

NEW CONSTRUCTION—REPAIRS

PRESTRESSED TANKS	STEEL ENCASEMENTS
RESERVOIR LINING	DAM REPAIRS
PEN STOCK LINING	TUNNEL LINING
SMOKE STACK LINING	SEWER REPAIRS

DISINTEGRATED CONCRETE ABUTMENTS RENEWED

REPAIRS TO ALL TYPES OF MASONRY

Write for our Bulletins

PRESSURE CONCRETE CO.

Engineers & Gunite Contractors

1st Nat. Bank Bldg. FLORENCE, ALA.

6 Avenue B NEWARK 5, N. J.

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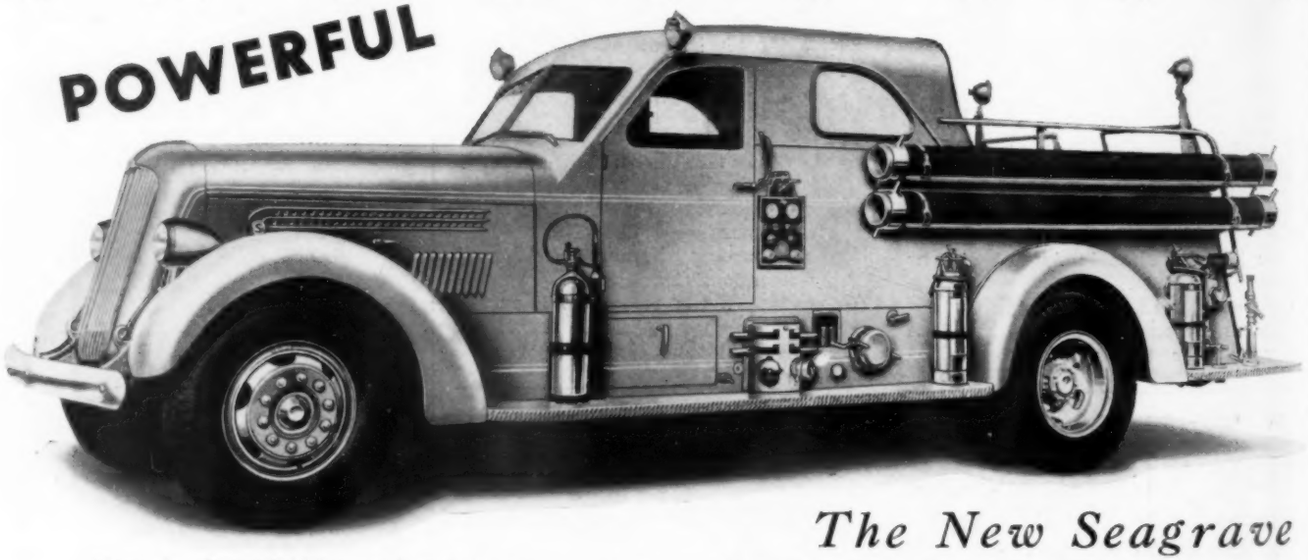
POWERFUL



The New Seagrave

Here is dependability and trouble-free service . . . here is plenty of reserve power . . . here is the most modern in fire protection for your city. It's the new Seagrave with exclusive features to meet the fire fighting conditions of tomorrow. Make any comparison you desire . . . give it the most severe of tests and you will agree with thousands of others who say that Seagrave is tops in the fire apparatus field.

THE SEAGRAVE CORPORATION
Columbus, Ohio
Bickle-Seagrave, Ltd.,
Woodstock, Ont.

SEAGRAVE

★ ★ ★ ★ THE GREATEST NAME IN FIRE APPARATUS

Mack Fire-Fighter with New Features

The new Mack 85 750-gallon triple combination pumper, purchased by Martinsburg, W. Va., has several features marking a departure from conventional design.

A special Type 85 750-gallon triple combination pumper was recently delivered to the Martinsburg, W. Va., fire department by Mack-International Motor Truck Corp., Empire State Bldg., New York, N. Y.

Several features of this fire-fighter mark a departure from conventional designs. For instance, this Mack 85 is equipped with supplemental swivel hose connections to make permanently coupled pony suction hose for a fast hydrant connection. The hose is in three 40-foot lengths.

There is, moreover, an unusual ladder-carrying arrangement. The racks, top-mounted, are hinged so they can be swung outward when the hose is loaded. Two of the three ladders are 24-feet long; the third, for roof work, is 14 feet. All are of aluminum.

Lieut. Dickinson Joins Calcium Chloride Assn.

Lieut. William E. Dickinson, veteran of four years' service in the U. S. Navy, has joined the staff of the Calcium Chloride Assn., Penobscot Bldg., Detroit 26, Mich., as a civil engineer on technical service.

Mr. Dickinson, who is a graduate of the Civil Engineering School of Ohio State University, has been an instrument man at a surveying camp working on a topographic survey of two proposed dam sites for the state of Ohio, a consulting engineer in Van Wert, Ohio, and was for eight months with the U. S. Engineers at Wright Field, Dayton, Ohio. While in the navy he was in charge of ordnance facilities of all the ten naval air bases in the Norfolk, Va., area and on the staff of Rear Admiral A. C. Reed.

Stewart-Warner Appoints New Sales Manager

Charles I. Kraus has been appointed sales manager of the Alemite distribution division of Stewart-Warner Corp., 1828 Diversey Parkway, Chicago, Ill., producers of lubrication systems and equipment and also marketers of specialized lubricants, according to F. A. Hiter, senior vice-president of the corporation. Gustave Treffeisen has been named assistant sales manager.

Mr. Kraus has been associated with Alemite since 1923. In his new position he will direct the factory field force of sales engineers responsible for distributor and jobber contacts in the automotive, industrial, farm, aviation, and other fields. For several years prior to assuming his new post he headed the company's industrial sales division.

Mr. Treffeisen has most recently been in charge of automotive and farm sales of equipment and lubricants. He joined the corporation in 1920 and has served in sales and administrative positions in the corporation's instrument, radio, and home appliance divisions.

GOLDEN-ANDERSON

Design and Build

OVER 1500

TYPES AND SIZES IN

AUTOMATIC

VALVES

For Engineered Protection

on any HIGH PRESSURE

INSTALLATION

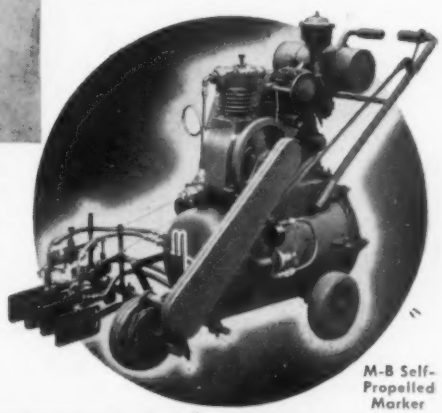
● Make Golden-Anderson Valves your first choice on any new or replacement project—for maximum safety, dependability and protection.

Descriptive Technical Catalog on request

GA GOLDEN-ANDERSON VALVE Specialty Company PITTSBURGH 22, PA.

STREET STRIPING AT 10,000 FEET PER HOUR!

Now — you can put street striping on a fast production basis with M-B Self-Propelled Marker. Because it operates at a constant speed, this efficient M-B machine produces a more uniform line . . . lays down more lines per hour . . . increases lineage per gallon of material used. No pushing necessary. Operator merely guides machine. Capacity, 10,000 feet per hour.



M-B Self-Propelled Marker

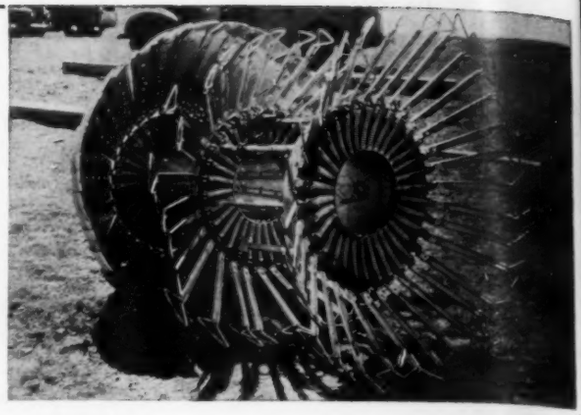
Use an M-B for SAFETY! It handles ANY type of striping job — traffic lines, straight or curved, single or double — parking areas — safety zones — crosswalks, etc. Also marks athletic fields, airports, tennis courts, etc. Quickly convertible to all-purpose paint sprayer. Hand-propelled and self-propelled models. Write for literature.

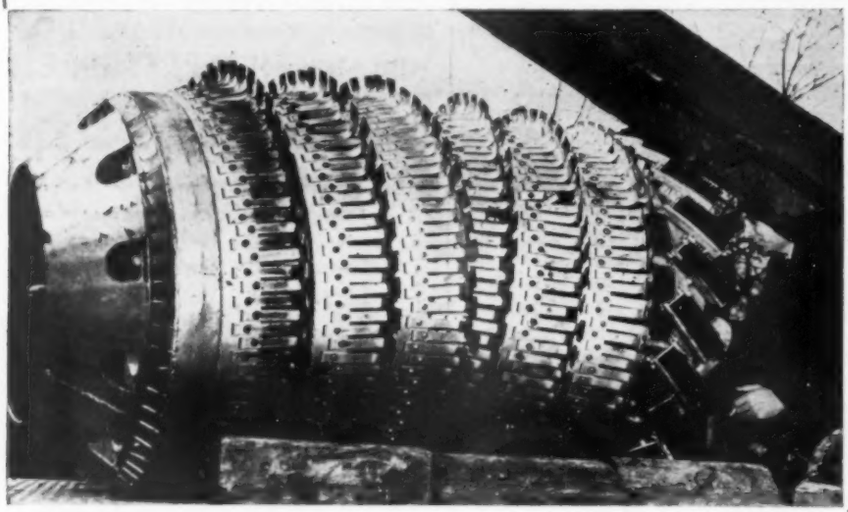
MEILI-BLUMBERG CORP.
Box A-6 New Holstein, Wis.

MB MARKERS

When Pipe Cleaning Jobs Are Tough NATIONAL has the answers!

These two pipe-cleaning machines are helping to build note-worthy records of achievement for the NATIONAL WATER MAIN CLEANING COMPANY. The machine at the right was specially designed to handle a new, unusual problem. NATIONAL's 39 years of experience in cleaning water mains, PLUS its equipment for all types of jobs, PLUS the ingenuity of its superintendents when facing new problems, ADDS UP to performance unequaled for economy and efficiency.





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Contractors for Cleaning of Water Mains

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BUY FOR SERVICE

The prospect of higher labor costs doesn't worry heads of Water Service and Park Depts. of some 1,000 cities. All took the precaution to write

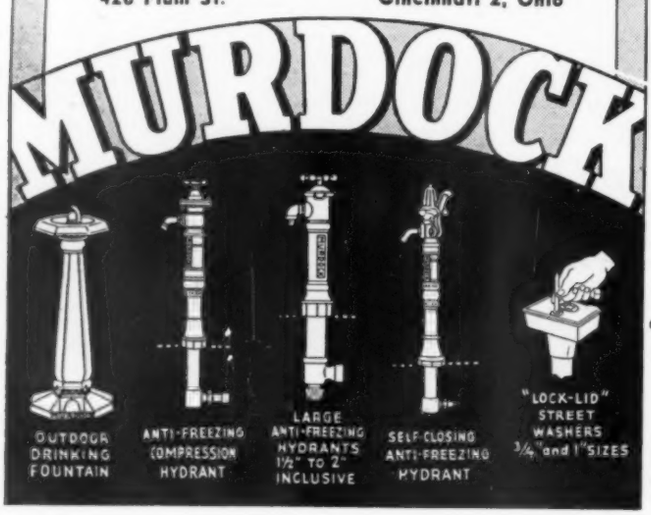
MURDOCK

in All Specifications and Requests for Bids on

OUTDOOR WATER SERVICE DEVICES

"It Pays to Buy MURDOCK"

THE MURDOCK MFG. & SUP. CO.
426 Plum St. Cincinnati 2, Ohio


MURDOCK
OUTDOOR DRINKING FOUNTAIN
ANTI-FREEZING COMPRESSION HYDRANT
LARGE ANTI-FREEZING HYDRANTS 1½" TO 2" INCLUSIVE
SELF-CLOSING ANTI-FREEZING HYDRANT
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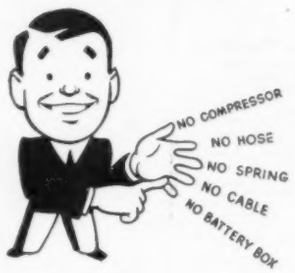

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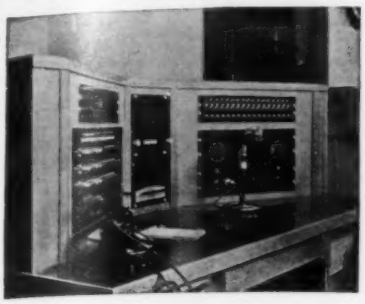

Communications desk where an operator can summon emergency crewmen through the Executone.

B. S. Thomas, manager of the water works at Long Beach, Calif., has over-the desk, split second speaking contact with his entire water works all the time. This is important since the Long Beach system includes the Wardlow watershed and plant, covering more than 25 acres, plus a distribution system serving a population of 164,271.

To provide this quick voice-communication the water department installed a central control communications system consisting of a master station and selector at the central communications desk, two trumpet speakers to cover the outside yard areas, and eight substations. The substations are used to contact executives. They are used by the receiving and shipping departments; one is installed at each of the guard stations; one covers the machine shop; and other substations are located in the garage, call-room and blacksmith shop.

For appearance and accessibility, the Executone master station and selector, manufactured by Executone, Inc., 415 Lexington Ave., New York 17, N. Y., were removed from their original cabinets and placed in the center panel of the specially constructed communications desk. The left side of the communications desk contains a Western Union-controlled clock and the P.B.X. board; a short-wave radio is in the upper center of the panel and the master station with the selector in the lower center, virtually at the operator's fingertips. The right side of the panel contains lights showing location of cars out on emergency calls, and short-wave transmtter which operates remotely from the main transmitter in the city hall several miles away.

New Traffic Manager for Fairbanks, Morse

Perry G. Jefferson has been named Traffic Manager of Fairbanks, Morse & Co., and will be located at the company's headquarters, 600 South Michigan Ave., Chicago 5, Ill. He replaces Joseph W. Elliott, who recently retired.

Mr. Jefferson has had wide experience in railroad activities, as he joined the Canadian Pacific Railroad in Cincinnati in 1924 as chief clerk. From 1925 to 1929 he served as assistant cruise director on various Canadian Pacific cruises, and in recent years he has been district passenger representative and traveling freight agent for the Canadian Pacific with headquarters at Dallas, Texas.

VanDyk Appointed by General Motors

E. J. vanDyk has been appointed petroleum industry field engineer and district manager of sales for the Detroit Diesel Engine Division of the General Motors Corporation, Detroit 23, Mich., according to an announcement by V. C. Genn, general sales manager of the division. Mr. vanDyk will be located at Tulsa, Okla., covering the district including Oklahoma, Kansas, and Illinois, and will work out of the General Motors petroleum industry sales office in the Philtower Building.

Before joining General Motors in 1939 he was employed with the Surface Combustion Company of Toledo, Ohio, a subsidiary of Cities Service, and as an engineer with the Detroit City Gas Company. With the Detroit Diesel Engine Division he had headed up studies of various phases of the application of GM series 71 diesel engine to oil well drilling and oil pumping operations.

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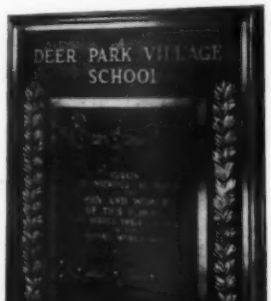

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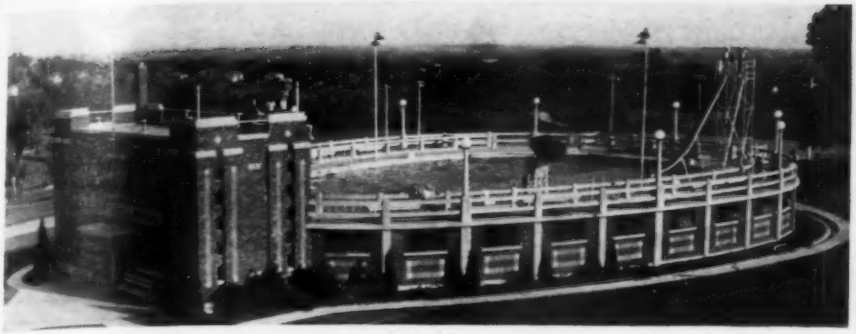

This Bintz pool was built in Fayette, Mo., ten years ago when Daniel C. Rogers was mayor. Tne years later Mr. Rogers writes: "The price of this beautiful pool was only $29,000. The concrete work in the concourse floors for swimmers and spectators remains as fresh and artistic as in June 1936. Visitors from distances of fifty miles patronize the pool."

All during the war, municipal officials wrote to THE AMERICAN CITY and MUNICIPAL INDEX for information on swimming pool construction and equipment. Though building had to cease during the war, the desire to have pools, appears to have still further increased. Readers of this publication may recall articles describing the ovoid and rectangular elevated swimming pools designed and constructed under the supervision of Wesley Bintz, 301½ S. Washington Avenue, Lansing 25, Mich. Mr. Bintz's design incorporates swimming pool and bathhouse in one structure. He now makes the suggestion that this type of pool can be tastefully combined with a community or memorial building.

The first floor of the community building is laid out with rooms for various activities and a stairway leading to the second floor, which would tie in with the first floor of the swimming pool or the bathhouse. The first floor of the bathhouse has a lobby, locker rooms, lavoratories for men and women, and the filter and control room. In the pool lobby would be counters, shelving, office, and first aid room. These facilities would have to be provided for in the community building if built separately and not available in the pool lobby.

On the second floor of the community building are concessions and/or kitchen, lounge, lobby, and general assembly floor divided by a sliding partition around the swimming pool. This would make possible utilizing the available space around the pool for any activities such as a community dance.

Where this arrangement is feasible, it can be expected that both the pool and the community facilities will enjoy added patronage. A fifty-page swimming pool pamphlet including photographs, casts, estimates, and recommendations is available without charge.

General Detroit Corp. Opens Cleveland Office

The General Detroit Corp. and The General Pacific Corp., manufacturers of fire extinguishers, motorized fire apparatus, and allied equipment have opened a new Cleveland office, according to an announcement by E. A. Warren, vice-president in charge of sales. The office is located at 912 Park Building.

Scott E. Collins has been appointed zone sales manager. He has been with The General Detroit Corporation for four years, and before that he was associated with the Fruehauf Trailer Co.

The opening of the Cleveland branch is in line with a general policy of expansion of the corporation's sales activities.

Rockwell Acquires Carton Packaging Company

Rockwell Manufacturing Co., 400 North Lexington Ave., Pittsburgh 8, Pa., has purchased The A. H. Ross Co., manufacturers of packaging machinery, according to an announcement by Colonel Willard F. Rockwell, chairman and president.

A. H. Ross, president and principal stockholder of the Ross company, will become vice-president and general manager of the packaging machinery division of Rockwell, but the company will continue to operate under the name of A. H. Ross Company and maintain its plant located in Ludlow, Ky. Plans call for considerable expansion of production in the Ludlow plant.

Mr. Ross established this company in 1940 and has developed and perfected a cartoning machine which has been termed revolutionary in design and amazing in simplicity.

Prior to the acquisition of this concern, the Rockwell company's business included the manufacture of meters, valves, regulators, and machine tools. Five companies were acquired by Rockland in 1945.

Pittsburgh Equitable Meter Division of Rockwell Mfg. Co., Pittsburgh 8, Pa., has issued a bulletin W-803 on its new line of Pittsburgh-Empire compound water meters. Cut-away and cross-section views and operating diagrams describe the exclusive features of this design.

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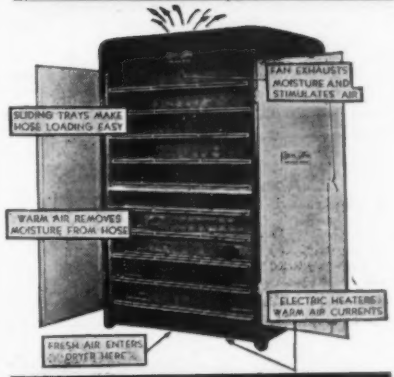
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JULY 1946

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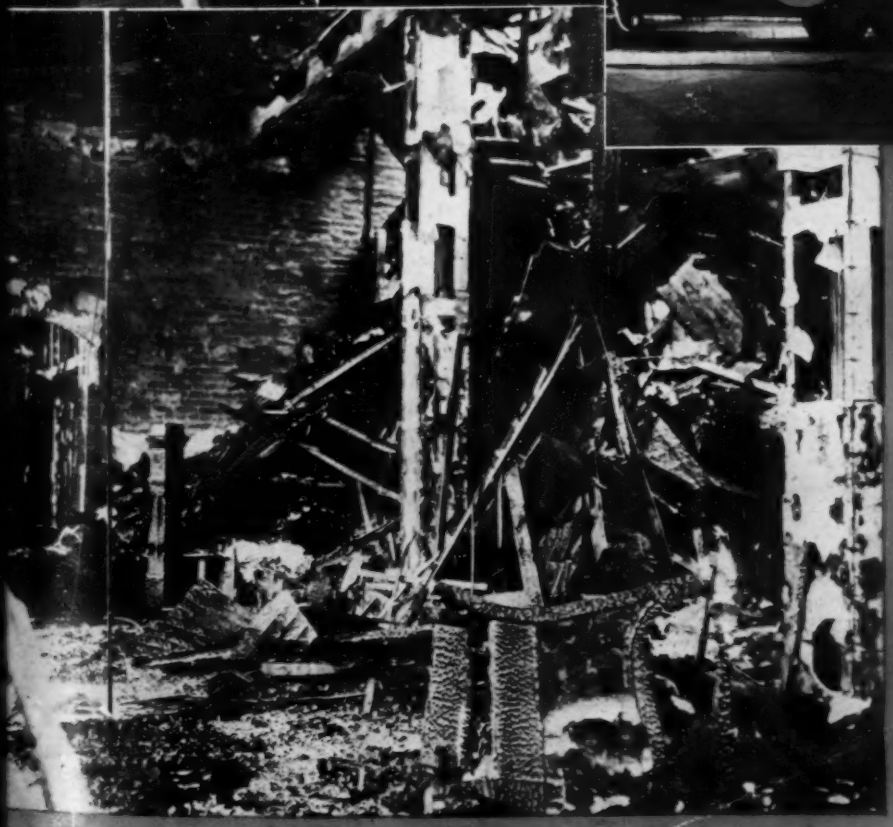

In Chicago's LaSalle Hotel fire on June 5 (upper left), 61 persons perished and about 200 were injured. Below is the lobby of Dubuque's Canfield Hotel where, on June 9, 16 died and scores were burned. In New York's Advertising Club fire on June 13 (upper right), 17 firemen were hurt. What shall be done? See page 79 of this issue.